COURSE NUMBER: ENVE, ENVS, and EVST 3100

Course Title: **Climate Resilience and Adaptation: Municipal Policy and Planning**

**Syllabus -- Fall 2022**

Syllabus information may be subject to change. The most up-to-date syllabus is located online within the course in HuskyCT.

**Course Title:** Climate Resilience and Adaptation: Municipal Policy and Planning  
**Credits:** 3  
**Format:** In person

**Class Time:** T/TH 3:30 to 4:45 pm  
**Location:** Floriculture Building Classroom 101

**Instructors:**  
Juliana Barrett, PhD  
ATL Bldg Rm 116A  
[Juliana.barrett@uconn.edu](mailto:Juliana.barrett@uconn.edu)  
Cell Phone: 860 208-3176  
Office Hours: By appointment

Christine Nelson, AICP  
ATL Bldg Rm 116A  
[christine.nelson@uconn.edu](mailto:christine.nelson@uconn.edu)  
Cell Phone: 860 526-8310  
Office Hours: By appointment

Please - reach out to us anytime. We strive to respond back in 24 hours or less (usually much less!) We welcome questions, comments, suggestions, and discussions.

Your success in this class is important to us. We will all need accommodations because we all learn differently. If there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible. Together we’ll develop strategies to meet both your needs and the requirements of the course.

We encourage you to visit the Office of Disability Services to determine how you could improve your learning as well. If you need official accommodations, you have a right to have these met. There are also a range of resources on campus, including the Writing Center, Tutoring Center, and Academic Advising Center.
Course Materials

Required course materials should be obtained before the first day of class.


If you’d like more information: Suggested Book: *A New Coast. Strategies for Responding to Devastating Storms and Rising Seas* by Jeffrey Peterson. ISBN: 978-1-64283-012-5

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 Objectives

Understand changes and trends in the Earth’s climate at the regional and local levels; identify clear indicators of climate change; determine geographic and functional impacts; discuss informed options for communities and formulate how to implement practical solutions.

Learn how to:

- Use indicators to explain how place-based environmental or social conditions respond to climate change over time.

- Look into how climate change impacts physical infrastructure and the natural environment both regionally and locally. Differentiate between how levels of government function and how land use decisions are made.

- From interdisciplinary perspectives, assess the vulnerability of natural and human systems at the regional, state, and municipal scale: break-down multiple exposures to climate impacts; classify adaptive capacity.

- Weigh the choices made by climate policy and evaluate the benefits/costs of programs at the federal, state, and local levels, including environmental justice. Effectively communicate the feasibility and benefits of climate adaptation.

- Design physical or systematic adaptations for nature and humanity to become more resilient to the impacts of climate change.
Special Assignments - we will talk more about these during class

· Attend a municipal meeting and write a 2 page, double spaced paper on the issue(s), what was discussed, the outcome (if any) and your impressions of the meeting (Due Nov 1, 2022)
· Role Playing Exercise (will be explained during class)
· Climate Adaptation and Resilience Project (will be explained during class)

Note: When an assignment includes a paper, it should be typed using Times New Roman 12 point font, double spaced; Submit assignments to both Barrett and Nelson as a Word Document or PDF in person or via email. One point will be subtracted for each day a paper is late.

Class Meeting Schedule and Assignments

Week 1 August 30/September 1

READINGS for Week 1:

- Lisa Dale, Climate Change Adaptation. Read Introduction and Chapter 1 (pp 1-38)
- IPCC Report, 6th Assessment:
  This link will take you to the Summary for Policymakers which presents key findings of Working Group II’s contribution to the IPCC’s Sixth Assessment Report (AR6). Read through this summary, there are many charts and references.
- U.S. Global Change Research Program https://www.globalchange.gov/browse/indicators/catalog
  Read through and become familiar with climate change indicators on this website

Optional:
If you would like to explore the IPCC reports further, the full IPCC Climate Change 2022: Impacts, Adaptation and Vulnerability 2022 report can be found at https://www.ipcc.ch/report/ar6/wg2/
This is Working Group II’s contribution to the IPCC Sixth Assessment Report assessing the impacts of climate change, looking at ecosystems, biodiversity, and human communities at global and regional levels. It also reviews vulnerabilities and the capacities and limits of the natural world and human societies to adapt to climate change.

Anthropocene:
- Living in the Age of Humans
  Produced by ESRI in collaboration with the Smithsonian Institution.

Visualizing climate change (just for fun):
- Earth Temperature Timeline (take it in, scroll slowly) (https://xkcd.com/1732/)
  From xkcd
**For Reference:**
Terminology: U.S. EPA Glossary of Climate Change Terms

If you are interested in weekly updates/current events related to climate change, subscribe to Yale Climate Connections https://www.yaleclimateconnections.org

**Week 1** August 30, 2022 Instructors Barrett/Nelson
- Introduction to class, topics and instructors
- Description of goals and objectives for course
- Description of spring semester independent study
- Projects and written assignments including attending municipal meeting
- Description of Climate Adaptation and Resilience Project and Role Playing exercise
- 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** September 1, 2022 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 9/06/22: 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 questions that this article leads you to ask and why? (2 pages, double spaced). Email pdf or Word Doc to juliana.barrett@uconn.edu

**Week 2 September 6/8**
Readings for Week 2

Climate change impacts
  https://nca2018.globalchange.gov/chapter/18/
- Lisa Dale, *Climate Change Adaptation*. Chapter 2 (pp 39-54)

**Week 2** September 6, 2022 Instructor Nelson
- Climate change impacts

**Week 2** September 8, 2022 Instructor Nelson
- Climate change impacts (continued)
- Role Playing Exercise – explanation and roles
Assignment for Week 2
Draft background and information for your character and what life experiences influenced your character’s position for the role playing exercise. This will be refined over the course of the semester. No written homework assignment for next week to be turned in. Ask questions as they arise. Be prepared to provide a one minute introduction of your character/position on September 15.

Week 3 September 13/15
Readings for Week 3
• Lisa Dale, Climate Change Adaptation. Chapter 3 (pp 55-69)
• NASA  https://sealevel.nasa.gov/multimedia: Watch “Rising Tides - Understanding Sea level rise,” “Greenland Ice Sheet – Three Futures,” and “Sea Level Rise Accelerates Over Time”
• National Climate Assessment (2018) key message on Sea level rise (go to Key Message #4)
• EPA indicators, Sea Level Rise

Week 3 September 13, 2022 Instructor Barrett
• Sea level rise trends
• Ecological and Infrastructure Impacts

Week 3 September 15, 2022 Instructors Barrett/Nelson
• 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 09/20/22
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. Write a 2 page, double spaced paper for this assignment. Submit pdf or word doc to Juliana.barrett@uconn.edu.

Week 4 September 20/22
Readings for Week 4
• Lisa Dale, Climate Change Adaptation. Read Chapter 4 (pp 70-84)

• Read through the Five Steps to Resilience website: NOAA’s Climate Change and Extreme Weather Vulnerability Framework: https://toolkit.climate.gov/steps-to-resilience/explore-hazards

• Take a look at the following 2 documents; one is the Natural Hazard Mitigation Plan for Old Saybrook and Borough of Fenwick, CT and the other is the Coastal Resilience Report that was recently developed for Stonington, CT

Old Saybrook and Fenwick, CT Natural Hazards Mitigation Plan 2019. Prepared by GZA GeoEnvironmental, Inc.

Week 4 September 20, 2022 Instructor Nelson
  • Responses to climate change
  • Municipal responses to climate change challenges
  • Response to sea level rise, flooding, storm surge and other climate related events.

Week 4 September 22, 2022 Instructors Barrett/Nelson
  • Vulnerability assessments/Resilience Plans /Natural Hazard Mitigation Plans (What are they and how to do an assessment)
  • Climate Adaptation and Resilience Plan Final Project - Discussion/Rubric/Teams

Assignment for Week 4: Climate Adaptation and Resilience Plan Exercise- review the rubric. Develop and submit a preliminary outline for your assessment. Outline will be explained in class. Due Sept 27, 2022. Submit pdf or Word Doc to christine.nelson@uconn.edu

Week 5 September 27/29
Readings for Week 5
  • Lisa Dale, *Climate Change Adaptation*. Read Chapter 5 (pp 85-99)

Land Use:
  • Wilson, E., C. Arnold, J. Volin. Connecticut’s Changing Landscape Story Map. UConn CLEAR. [Connecticut’s Changing Landscape Story Map](https://uconn-clear.org/)

Flooding:

Week 5 September 27, 2022 Instructor Michael 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 September 29, 2022 Field trip on UConn campus – RAIN or SHINE
  • LID campus tour with a climate change focus

Assignment for Week 5: Role Playing Exercise Character Development Assignment (2 pages, double spaced) due 10/05/22. Submit pdf or Word doc to christine.nelson@uconn.edu

Week 6 October 5/7
Readings for Week 6
  • Lisa Dale, *Climate Change Adaptation*. Read Chapter 6 (pp 100-115)
Optional Readings:


Week 6 October 4, 2022 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 October 6, 2022 Instructor Barrett
- Environmental Health and Climate Change
- Discuss midterm assignment

Hand out Midterm Assignment

Assignment:
Instead of an exam, you will have a take home project of a climate change related disaster that occurred in 2050 – creating verbiage for a plaque along with information on the site, what occurred, the role of climate change, as well as primary and secondary impacts.
You will receive the full assignment on October 6.

Due by 3:30 pm on October 13, 2022
Submit pdf or Word doc to juliana.barrett@uconn.edu and Christine.nelson@uconn.edu

Week 7 October 11/13
Reading for Week 7:
- Lisa Dale, Climate Change Adaptation. Chapter 7 (pp 116-131)

Week 7 Oct 11, 2022 Instructor: Patrick McKee and Betsy Mortensen, UConn Office of Sustainability
- Sustainability and Climate Change at UConn
- Time for questions about Mid-term Project

Week 7 Oct 13 2022
Midterm Project – Due by 3:30 pm on October 13, 2022

Each student provides a 2.5 minute oral summary of their project during class; see assignment for more details
Assignment for Week 7: Work on Climate Adaptation and Resilience Project

Week 8 October 18/20
Readings for Week 8


Week 8 Oct 18, 2022 Instructor Nelson (JOINT WITH BROWNFIELD CORPS)
Classroom to be determined
- 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 20, 2022 Instructor Nelson/Barrett
- 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 2022
- Climate Adaptation and Resilience Project check-in – break into groups and discuss project and any issues; class discussion

Assignment for Week 8: Work on Climate Adaptation and Resilience Project; Status report due 10/27/22. Submit pdf or Word Doc to Christine.nelson@uconn.edu

Week 9 October 25/27
Readings for Week 9

- Lisa Dale, *Climate Change Adaptation*. Read Chapters 8-9 (pp 132-151)
- Watch the legal issues and flood resilience video at: https://climate.uconn.edu/tools-assistance/training-modules/legal-and-flood/

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
Week 9 Oct 25, 2022 Instructor: To be Determined
   · Legal aspects of climate adaptation in Connecticut

Week 9 Oct 27, 2022 Instructors Nelson and Barrett to facilitate municipal panel

Assignment for Week 9:
Attend a 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 November 1, 2022. Submit pdf or Word Doc to Christine.nelson@uconn.edu

Week 10 November 1/3
Readings for Week 10


Optional Readings:

Week 10 November 1, 2022 Climate Equity Instructor: Barrett
• Class discussion on equity and environmental justice

Week 10 November 3, 2022 Instructor: Nancy Balcom
• Coastal Storm/Flood Disaster and Emergency Preparedness (Coastal Storm Awareness Program)

Assignment for Week 10
Write a two page, double spaced essay on: What were your reactions and take-aways from the Balcom lecture? What are your thoughts on hurricanes and evacuation? Under what circumstances would you evacuate or not evacuate your residence? Due 11/10/22. Submit pdf or Word Doc to juliana.barrett@uconn.edu

Week 11 November 8/10
Readings for Week 11
Take a look at the following websites:
Sustainable CT website (vulnerability assessment), Sustainable CT Actions – see 5.4 Assess Climate Vulnerability FEMA Community Rating System A local official’s guide to the Community Rating System FEMA National Flood Insurance Program Take a look at the FEMA Flood Maps Is your home, apartment, relative/friend’s house in a flood zone?

Week 11 Nov 8, 2022 Instructor Nelson
• Sustainable CT
• Community Rating System
• National Flood Insurance Program
• Non-technical scientific writing/IPCC reports
• Role Playing exercise – class time for character development and discussion
• CVA and CARP Exercise – class time for discussion

Week 11 Nov 10, 2022 Instructor Nelson/Barrett
• Discussion of what students think is a priority for action on adaptation

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 11/15/22. Submit pdf or Word doc to christine.nelson@uconn.edu

Week 12 November 15/17
No readings

Week 12 Nov 15, 2022 Instructor Nelson/Barrett
• Role playing exercise

Week 12 Nov 17, 2022 Instructor Nelson/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 29, 2022. Submit pdf or Word doc to christine.nelson@uconn.edu

Week 13 November 22/24
THANKSGIVING BREAK

Week 14 November 29/December 1

Readings for Week 14
- Take the Six Americas quiz and come prepared to discuss:
  https://climatecommunication.yale.edu/about/projects/global-warmings-six-americas/

Week 14 November 29, 2022 Instructor Nelson/Barrett
- Role playing exercise and roundtable debrief

Week 14 December 1, 2022 Instructor Barrett
- Climate Communications and Global Warming’s Six Americas

Assignment for Week 14: Work on Climate Adaptation and Resilience Project

Week 15 Dec 6/8
Readings for Week 15
- No Assigned Readings

Week 15 Dec 6 Instructor Nelson
- Historical structures and climate change

Week 15 Dec 8 Instructor Barrett
- Out of the box climate adaptation thinking – there is hope!

Papers on CVA, CARP and team presentations due on final exam period. Email word or pdf document to Christine.nelson@uconn.edu and juliana.barrett@uconn.edu.
Course Grading and Requirements

Summary of Course Grading:

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<tr>
<th>Course Components</th>
<th>Weight</th>
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<tr>
<td>Midterm Project</td>
<td>20%</td>
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<tr>
<td>CVA/CARP Exercise</td>
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<tr>
<td>Writing assignments*</td>
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<tr>
<td>Discussion/Participation**</td>
<td>10%</td>
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TOTAL 100%

*Writing Assignments include:
1) Municipal Meeting Paper (20 points)
2) Role playing character development biography (20 points)
3) Role playing public hearing position paper/article (30 points)
4) Three short writing assignments (10 points each)

**Discussion/Participation
Includes:
- Class discussions
- Character Development Introduction
- Municipal Meeting Attendance
- Public Meeting Performance

Grading Scale:

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<thead>
<tr>
<th>Grade</th>
<th>Letter Grade</th>
<th>GPA</th>
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<tbody>
<tr>
<td>93-100</td>
<td>A</td>
<td>4.0</td>
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<tr>
<td>90-92</td>
<td>A-</td>
<td>3.7</td>
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<tr>
<td>87-89</td>
<td>B+</td>
<td>3.3</td>
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<tr>
<td>83-86</td>
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<td>80-82</td>
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<td>70-72</td>
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Due Dates and Late Policy

All course due dates are identified in the Syllabus. Deadlines are based on Eastern Time unless otherwise specified. We reserve the right to change dates accordingly as the semester progresses. All changes will be communicated in an appropriate manner.

Late Policy - one point will be deducted for each day that an assignment is late.

Feedback and Grades
We will make every effort to provide feedback and grades by one week after the due date. To keep track of your performance in the course, refer to My Grades in HuskyCT.

Weekly Time Commitment
You should expect to dedicate 9 hours a week, outside of class time, to this course. This expectation is based on the various course activities, assignments, and assessments and the University of Connecticut’s policy regarding credit hours. (More information related to hours per week per credit can be accessed at the Online Student website).

How to Succeed in this Course

All students can succeed in this course and we are here to help you along the way. Many of the students who have taken this course, have gone on to graduate school and professional positions pertaining to climate change. However, whether or not you go into a career having to do with climate change, our hope is that you are able to incorporate climate change into your daily life and decisions that you make. Please do not hesitate to ask questions or request office hours. All questions are important here.

Success in this course program depends heavily on your personal health and well-being. We recognize that stress is an expected part of the college experience, and it often can be compounded by unexpected setbacks or life changes outside the classroom. We strongly encourage you to reframe challenges as an unavoidable pathway to success. Reflect on your role in taking care of yourself throughout the semester, before the demands of exams and projects reach their peak. Please feel free to reach out to us about any difficulty you may be having that may impact your performance in your courses or campus life as soon as it occurs and before it becomes too overwhelming. In addition to your academic advisor, we strongly encourage you to contact the many other support services on campus that stand ready to assist you.

Student Resources:
Dean of Students Office
Academic Achievement Center
Writing Center
Quantitative Learning Center
Center for Students with Disabilities
Title IX Office
Student Health and Wellness -- Mental Health
Student Responsibilities and Resources

As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. Review these important standards, policies and resources, which include:

- The Student Code
  - Academic Integrity
  - Resources on Avoiding Cheating and Plagiarism
- Copyrighted Materials
- Credit Hours and Workload
- Netiquette and Communication
- Adding or Dropping a Course
- Academic Calendar
- Policy Against Discrimination, Harassment and Inappropriate Romantic Relationships
- Sexual Assault Reporting Policy

Resources for Students Experiencing Distress

The University of Connecticut is committed to supporting students in their mental health, their psychological and social well-being, and their connection to their academic experience and overall wellness. The university believes that academic, personal, and professional development can flourish only when each member of our community is assured equitable access to mental health services. The university aims to make access to mental health attainable while fostering a community reflecting equity and diversity and understands that good mental health may lead to personal and professional growth, greater self-awareness, increased social engagement, enhanced academic success, and campus and community involvement.

Students who feel they may benefit from speaking with a mental health professional can find support and resources through the Student Health and Wellness-Mental Health office. Through this office, students can make an appointment with a mental health professional and engage in confidential conversations or seek recommendations or referrals for any mental health or psychological concern.

Mental health services are included as part of the university’s student health insurance plan and also partially funded through university fees. If you do not have UConn’s student health insurance plan, most major insurance plans are also accepted. Students can visit the Student Health and Wellness-Mental Health located in Storrs on the main campus in the Arjona Building, 4th Floor, or contact the office at (860) 486-4705 for services or questions.