

Climate Resiliency Planning/USP 560

Syllabus: Spring 2025

Course Information

- Meeting Day/Times: Tuesdays, 1-3:30pm
- Location: Academic & Student Rec Center 240 (note this is in-person class)
- Instructor: Dr. Megan Horst
 - Climate Equity Senior Advisor, Cascadia Consulting
 - Affiliate Professor Urban Studies and Planning
 - Co-Chair of Portland Clean Energy Fund, Community Advisory Committee
- Contact: mhorst@pdx.edu (do not use Canvas email; I do not respond there).
- Office Hours: Generally, I will stick around after class for quick questions. If you want to schedule a longer conversation, email me a propose 20" timeslot and using a google calendar invitation. If it is possible to discuss over email, that is better since I work 9-5).

Course Overview

This graduate-level course examines the principles, practices, and challenges of climate resilience planning in urban and regional contexts. Students will learn to assess climate vulnerabilities, develop adaptation strategies, and create comprehensive resilience plans while considering social equity, economic impacts, and environmental sustainability.

The course is designed to meet several learning objectives, consistent with the long-standing Master of Urban and Regional Planning (MURP), and the emerging Master of Emergency Management and Community Resilience (MEMCR) programs. The learning objectives include:

- Content Knowledge: Develop a scientific understanding about climate change and its implications on society, infrastructure, and ecosystems;
- Critical Thinking: Describe the challenges facing the transition of systems for resilience;
- Team-work: Engage collective knowledge through effective group discussions; and
- Communication: Express ideas in concise and clear form.

Course Objectives

By the end of this course, students will be able to:

- Evaluate climate risks and vulnerabilities specific to urban and regional areas

- Integrate social equity considerations into resilience planning
- Recommend relevant climate adaptation and resilience policies and strategies
- Analyze and evaluate the effectiveness of various resilience measures

Readings

The readings for this course will be available through Canvas, and no book or other reader will be necessary. You will need to log in to the PSU library access some articles.

Course Structure

We will meet once per week, and each class sessions will include a mix of lecture/presentations, occasional guest speakers and interactive activity/discussion sections. We will draw on the strength and expertise of those in the class to think through the types of challenges that planners, city managers, and public officials must address in preparing for the impacts of climate change. You should come to class prepared, having read and looked through the resources, and prepared to participate.

Weekly Modules

See Canvas for more details and their associated readings/resources

Week 1: Why this matters and intro to Cities and GHG Emissions

Topics

- Why climate resilience matters to urban areas/regions and urban planners
- About the science of climate change
- Cities and GHG emissions
- Cultivating our mental health/stamina

Readings/Resources

- IPCC [Sixth Assessment Report](#) (AR6) - mainly the headlines and summary for policy makers
- [C40 Cities. about GHG emissions](#)
- [Portland GHG Emission inventory](#) Explore the data
 - What are the City's largest emissions sources? How would you describe emissions trends in Portland? etc.
- Before class- identify an climate-related art/reading/poem/book/activist leader/person/story, etc that inspires you/motivates you and come prepared to share a few sentences about this

Week 2: Understanding Climate Risks and Vulnerabilities

Topics

- Climate impacts assessments; the role of climate modeling.
- Climate impacts to human health
- Identifying vulnerable populations and sectors
- Social, economic, and environmental factors influencing vulnerability
- Intro to approaches and tools

Readings/Resources

- IPCC Special Reports on Climate Impacts.
- Thomas, K., Hardy, R.D., Lazrus, H., Mendez, M., Orlove, B., Rivera-Collazo, I., & Winthrop, R. (2019). Explaining Differential Vulnerability to Climate Change: A Social Science Review. *Wiley Interdisciplinary Reviews: Climate Change*, 10(2), e565.
- resources like UW CIG, NOAA, etc. EPA, CDC, and CEQ Environmental Justice Tools <https://lnkd.in/gFqdnN5N>
- <https://storymaps.arcgis.com/stories/15421d03a5744cf2bf83c9f016eb458c>
- <https://fortress.wa.gov/doh/wtn/WTNIBL/>
- Examples CVAs: Seattle, Issaquah, etc

Week 3: Climate Action Planning

Topics

- From 1st generation climate action plans to now
- Professional policy guidance/what urban leaders and planners can do
- Evaluation of climate action planning

Readings/Resources

- [American Planning Association Policy guide on climate change](#)
- Meerow, S., & Woodruff, S. C. (2020). [Seven principles of strong climate change planning](#). *Journal of the American Planning Association*, 86(1), 39-46. [Access via PSU Library](#)
- <https://www-tandfonline-com.proxy.lib.pdx.edu/doi/full/10.1080/01944363.2024.2386055>
- Skm Portland's Climate Action Plan (it is getting updated!)

Week 4: Climate Resilient Cities

Topics

- What is resilience? What is adaptive capacity?
- Resilience and adaptation measures
- Hazard mitigation and community wildfire planning and climate planning
- Focus on living with wildfire

Readings/Resources

- [Climate Resilience Toolkit](#)
- Shi, L., & Moser, S. (2021). Transformative Climate Adaptation in the United States
- Davis, M. (1995). The Case for Letting Malibu Burn. *Environmental History Review*, 19(2), 1–36 and a recent [response from Rebecca Solnit](#)
- [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(25\)00129-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(25)00129-1/fulltext)
- [Explore Oregon WUI Maps](#)
- [Oregon DLCD Wildfire Adaptation Recommendation](#)

Week 5: Climate justice and Tribal and indigenous-led climate planning

Topics

- Equity in municipal-led climate planning
- Climate gentrification concerns and responses
- Indigenous and Black-led climate planning

Readings/Resources

- Fitzgerald, J. (2022). Transitioning from urban climate action to climate equity. *Journal of the American Planning Association*, 88(4), 508-523.
- Gould, K.A., & Lewis, T.L. (2018). From Green Gentrification to Resilience Gentrification: An Example from Brooklyn. *City and Community*, 17(1), 12–15.
- <https://www.nrdc.org/stories/planning-climate-change-native-americans-draw-past> and CTUIR Climate Adaption Plan: <https://ctuir.org/media/oeklm2el/cap-executive-summary-final-std-pg-no.pdf>

Week 6: Climate planning at other levels/places

Topics

- Political context- federal and state

- Closer look at Washington state Climate Element Planning and California climate planning

Readings/Resources

- The federal context is rapidly changing so we will crowd source a resource a week prior.
- <https://www.science.org/doi/10.1126/science.abc8054>
- Washington HB1181: Policy explorer
<https://experience.arcgis.com/experience/dd012fae9fad4a309b0d89e3c13016e5/page/Basic/>
- Example Climate Element

Week 7:Community engagement (Attend or watch a PCEF event)

Topics

- Engaging residents
- Strategies for engaging

Readings/Resources

- Communication tips for diverse audiences
- <https://mrsc.org/explore-topics/environment/sustainability/climate-equity-and-engagement>
- Review a climate engagement plan/summary
- Watch or attend a climate--planning engagement event; come prepared to share out

Week 8: Program implementation, funding and monitoring (ask Jaimes to come talk about Cooling Portland)

Topics

Readings/Resources

- PCEF Climate Investment Plan

Week 9: Hearing from climate planner

Readings/Resources

- Skim some example projects shared by guest speakers

Week 10: Student presentations, class synthesis and preparing for your next steps

Grades /Evaluation Criteria

Note that for a 3 credit graduate class, it is expected that you spend about 6 hours outside of class, doing the reading/preparation and working on assignments.

See Canvas for assignment descriptions and relevant rubrics, etc.. You will be evaluated on a 100 point scale, divided into the following criteria:

- Course Participation: 20%
 - Easy points to get if you show up, prepared, and participate actively in class. You get one freebie missed week.
 - Participation includes: involvement with class discussions (includes listening), asking substantive questions, addressing instructor's questions, working effectively in teams, and sharing relevant news and information.
- Four Assignments: 20% each. Each are relatively brief and adapted from professional planning (typically 4 pages/not long research papers). You will have some time to work on them in class, though will be expected to spend time outside of class.
 - Assignment 1: Reflect on a GHG emissions inventory
 - Assignment 2: Climate impacts and vulnerabilities (physical assets, communities)
 - Assignment 3: Policy audit of a comprehensive plan
 - Assignment 4: Implementation strategies matrix and brief presentation

About Assignments

These all draw from real-world climate planning activities and utilize documents that are publicly available.

Use of AI like chatgpt, claude and others: You are allowed to use it to generate ideas for structure, key points, etc., but should NOT copy/paste without rewriting, checking for accuracy, etc.

Assignment 1: GHG emissions inventory public 1-pager

Read Portland's most recent emissions report:

<https://www.portland.gov/bps/climate-action/documents/multnomah-county-2022-carbon-emissions-and-trends/download> as well as its most recent consumption-related inventory: <https://www.portland.gov/bps/scp/documents/sustainable-consumption-and-production-report-and-two-year-workplan/download>

Also browse the recently released Climate and Energy dashboard:

<https://public.tableau.com/app/profile/portland.bps/viz/ClimateandEnergyDashboard/ClimateandEnergyDashboard>

and <https://www.portland.gov/bps/climate-action/pathways-net-zero-1>

Make a 1-page handout (2-sided, simple text, with appropriate graphics, etc) that communicates to the public:

- The primary sources of emissions in Portland
- Portland's GHG emissions reductions goals, priority actions and progress

Tips:

- You can use Canva, Word, Powerpoint, Adobe, or any other program to design the 1-pager.
- You will not be evaluated for your graphic design skills, but for your ability to distill and present technical information about GHG emissions for a public audience.
- Often Cities have templates they use for flyers and hand-outs- feel free to find other Portland documents and adapt the format for your own use.

Additional resources:

- https://www.c40knowledgehub.org/s/article/The-Global-Protocol-for-Community-Scale-Greenhouse-Gas-Emission-Inventories-GPC?language=en_US

Assignment 2: Climate risk and vulnerability slide deck

In this assignment you will review a Climate Vulnerability Assessment for the City of Seattle:

<https://seattle.gov/documents/departments/opcd/seattleplan/seattleclimatevulnerabilityassessmentjuly2023.pdf>

The main steps in a Climate Vulnerability assessment are discussed here:

<https://toolkit.climate.gov/assess-vulnerability-and-risk>, though keep in mind there is no one agreed upon way to assess risk and vulnerability

Imagine you are presenting to a Climate Policy Technical Advisory committee on an overview of climate vulnerability assessment for Seattle (it is okay for you to get technical for this one; you can assume participants are knowledgeable and subject matter experts).

Create a brief slide deck and speaking points (Aim for a 10" presentation) which highlight:

- Key climate risks overall and by neighborhood
- Community assets that face climate risks
- Frontline/vulnerable communities that face climate risks
- Reflection on adaptive capacity

Obviously, this is a short amount of time for a complex topic! You'll have to prioritize what to include and distill the most important points.

Some tips for slides:

- Often a City will have a style guide or template they use for professional presentations
- Some tips here: <https://www.youtube.com/watch?v=sQzD3st8mTk>
- You can use Powerpoint, google slides, slides2go, or any other that seems relevant

Additional resources

- <https://toolkit.climate.gov/assess-vulnerability-and-risk>
- <https://deptofcommerce.app.box.com/s/fpg3h0lbwln2ctqjg7jg802h54ie19jx>

Assignment 3: Policy audit of a comprehensive plan

Review the completed policy audit for the City of Spokane

<https://static.spokanecity.org/documents/planspokane/climate-planning/spokane-climate-policy-audit-memo.pdf>

Pick ONE of the sectors (e.g I will use the example of transportation). Imagine you are the lead climate planner for the City of Spokane. You have been asked to write a brief memo (2-4 pages) to the Director of the Agency/Bureau/Department relevant to that sector (e.g. Public Works). The newly hired Director is a climate champion and ready to adopt some new and stronger climate policies.

Write a professional memo with key take-aways about:

- Overall policy audit findings
- Sector specific reflections/synthesis of what is done well, gaps, barriers, etc.
- Your recommendations for at least three revised or new policies, as well as a rationale.

For ideas for policies:

- <https://experience.arcgis.com/experience/dd012fae9fad4a309b0d89e3c13016e5/page/Basic/>
- <https://toolkit.climate.gov/>
- Others as relevant to the sector

Assignment 4: Implementation Strategies Matrix for Grand Ronde Tribe

The Confederated Tribes of the Grand Ronde is looking for specific climate resilience and adaptation implementation strategies. Imagine you have been hired by them and asked to draft an implementation strategies matrix using the following directions:

Assemble a draft list of actions (Tribal operation, management, construction, programming, and other) in a Workbook and Present to class

. Develop a draft matrix of Tribal operational, management, and construction best practices to develop climate adaptation strategies. Adaptation strategies shall, at a minimum, include: consideration of enhanced monitoring and early warning systems, ecosystem and natural resource management, infrastructure resilience, traditional ecological knowledge integration, agricultural and food security/sovereignty, biodiversity conservation, health and social services, energy efficiency and renewable energy, climate policy development and governance, economic diversification, cultural resource protection, timber practices, transportation, water resource management, carbon sequestration, and emerging climate threats.

Evaluate actions. Starting evaluation criteria: the ability to reduce GHG emissions, sequester CO₂, and increase climate resilience. Other potential criteria include community support, co-benefits, connection to Tribal cultural practices and resurgence, cost, feasibility, social equity, and urgency.

For this assignment, you will make a list of 10 actions (you may choose to focus in on one or more topics rather than the full list) and evaluate them, in an Excel workbook or similar. You should start by familiarizing yourself with the Tribe and its history/culture, as a starting point (and recognize that

Resources for tribal climate

- <https://tribalclimateguide.uoregon.edu/>
- Institute for Tribal Environmental Professionals - Tribes and Climate Change Program: <http://www7.nau.edu/itep/main/tcc/Home>
- U.S. Climate Resilience Toolkit: <https://toolkit.climate.gov>
- Bureau of Indian Affairs Branch of Tribal Climate Resilience: <https://www.bia.gov/bia/ots/tcr>
- <https://ctuir.org/media/vlepiubg/ctuir-cap-final-2022-lo-res.pdf>

Policies and Supports

Late work

will be automatically marked down by 1 point per day unless prior arrangements have been made with the instructor. Regular class attendance and participation are necessary and expected.

Title IX Reporting Obligations

As an instructor, one of my responsibilities is to help create a safe learning environment for my students and for the campus as a whole. Please be aware that federal, state, and PSU policies require faculty members to report any instances of sexual harassment, sexual violence and/or other forms of prohibited discrimination. Similarly, PSU faculty are required to file a report if they have reasonable cause to believe that a child with whom they come into contact has suffered abuse, or that any person with whom they come into contact has abused a child. If you would rather share information about these experiences with an employee who does not have these reporting responsibilities and can keep the information confidential, please contact one of the following campus resources: Women's Resource Center (503-725-5672); Queer Resource Center (503-725-9742); Center for Student Health and Counseling (SHAC): 1880 SW 6th Ave, (503) 725-2800; Student Legal Services: 1825 SW Broadway, (SMSU) M343, (503) 725-4556. For more information about the applicable regulations please complete the required student module "Creating a Safe Campus" in your D2L

Academic Integrity

Portland State University (PSU) takes academic integrity very seriously. To falsify or fabricate the results of one's research; to present the words, ideas, data, or work of another as one's own; or to cheat on an examination or project corrupts the essential process of higher education. Students failing to adhere to these principles of academic integrity will be penalized (e.g. reduction of points, fail the course, etc.). For further information please refer to PSU's student conduct code (<http://www.pdx.edu/dos/conduct.html>) or consult the instructor if you are unsure what constitutes a breach of academic integrity.

Disabilities

PSU values diversity and inclusion; we are committed to fostering mutual respect and full participation for all students. My goal is to create a learning environment that is equitable, useable, inclusive, and welcoming. If any aspects of instruction or course design result in barriers to your inclusion or learning, please notify me. The Disability Resource Center (DRC) provides reasonable accommodations for students who encounter barriers in the learning environment. If you have, or think you may have, a disability that may affect your work in this class and feel you need accommodations, contact the Disability Resource Center to schedule an appointment and initiate a conversation about reasonable accommodations. The DRC is located in 116 Smith Memorial Student Union, 503-725-4150, drc@pdx.edu, <https://www.pdx.edu/drc>.