

ENV H 418 A Wi 24: Understanding And Managing The Health Risks Of Climate Change

SYLLABUS

Managing the health risks of climate change

GH/ENV H 418/518 (3 credits)

Lectures Mondays / Wednesdays 1:00 – 2:20pm

Condon Hall Room 139

Instructor:

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Teaching assistant:

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Office hours will be held by appointment

Prerequisites: None. This is an overview course open to students without specific training in the areas of climate change, environmental sciences, and/or public health.

Course description

Climate change is causing preventable injuries, illnesses, and deaths, with each additional unit of warming projected to further increase morbidity and mortality from most climate-sensitive health outcomes without additional, timely, and effective investments in adaptation and rapid and sufficient reductions in greenhouse gas emissions. Vulnerable populations and regions will be differentially affected, with the potential to increase poverty and inequities.

Heat-related morbidity and mortality is the best researched climate-sensitive health outcomes. Urban heat islands often amplify the impacts of heatwaves in cities. Risks for some vector-borne diseases, such as malaria and dengue fever, are projected to increase with warming from 1.5°C to 2°C, including potential shifts in their geographic range and changes in their seasonal distribution. Undernutrition is projected to further increase with additional warming. Separately, increasing concentrations of carbon dioxide are expected to reduce the nutritional quality of significant cereal crops. Other potentially large risks are insufficiently quantified, including the impacts of climate variability and change on a range of climate-sensitive health outcomes, such as diarrheal diseases, occupational heat stress, mental health, and migration and displacement.

Adaptation (adjustments in response to actual or expected climatic shifts) and mitigation (efforts to reduce to the likelihood of dangerous climate change by limiting greenhouse gas emissions) are the primary policy responses to address the health risks of climate change. Health adaptation can reduce the current and projected burdens of climate-sensitive health outcomes over the short term in many countries, but the extent to which it could do so past mid-century will depend on emission and development pathways. Under high emission scenarios, climate change will be rapid and extensive, leading to fundamental shifts in the burden of climate-sensitive health outcomes that will be challenging for many countries to manage. Unmanaged disease burdens could erode gains made in public health, economic development, and living standards worldwide. Sustainable development pathways could delay but not eliminate associated health burdens.

Students in this course will gain foundational knowledge in the health effects of climate change, methods for quantifying climate change health effects, adaptation needs and strategies, and health benefits of mitigation activities.

Learning objectives

Students will be able to:

- Identify the major health risks of climate variability and change, including the sources of vulnerability to those risks
- Identify highly vulnerable populations domestically and globally
- Identify key interventions to promote climate-resilient and environmentally sustainable health systems
- Enumerate key issues in implementing, monitoring, evaluating, learning from, and continuously updating, adaptation policies and programs
- Outline the health benefits of mitigation policies to reduce greenhouse gas emissions

- **Graduate student only** - Evaluate policy options to address the health risks of climate variability and change

SPH Land Acknowledgement

The University of Washington acknowledges the Coast Salish people of this land, the land which touches the shared waters of all tribes and bands within the Duwamish, Suquamish, Tulalip, and Muckleshoot nations.

Expectations of Students

Students are expected to prepare for, attend, and participate in class discussions, demonstrate knowledge of assigned readings, and demonstrate teamwork/professionalism. Students are also expected to take the midterm exam, the final exam, and write one paper on a relevant topic chosen between the student and the instructors. (see Grades)

Academic Integrity

Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity.

The UW School of Public Health (SPH) is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, unauthorized use of artificial intelligence (AI) tools, and other misconduct are serious violations of the University of Washington [Student Conduct Code \(WAC 478-121\)](https://apps.leg.wa.gov/WAC/default.aspx?cite=478-121). We expect you to know and follow the university's policies on cheating and plagiarism, and the SPH Academic Integrity Policy. Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington [Community Standards and Student Conduct](https://www.washington.edu/cssc/).

Use of AI

Where you are allowed to use generative AI tools for an assignment, you are required to do the following. These activities are meant to a) encourage your development of appropriate attribution skills, b) reflect upon how generative AI is contributing to or harming your learning, and c) protect you in the event of an academic misconduct inquiry.

1. Use track changes to demonstrate how much of the written product was written by generative AI, and how much was written by you.
2. Maintain a history within the AI tool of your prompts and outputs (for example the chat history in ChatGPT).
3. Provide a written statement including the following.
 1. Describe how you used generative AI in the assignment or project.
 2. Describe how you verified outputs were correct or true.
 3. Provide a reflection on *how* using generative AI tools befitted you or potentially harmed the learning goals of the assignment.
 4. Attest that you did not put any protected data into an AI tool during your completion of the assignment, including copyrighted materials, the intellectual property of others (including papers written by others, or the text of your instructor's assignment instructions), research or study data, interview transcripts, or personal information of others.

Classroom Climate

We are co-creators of our learning environment. It is our collective responsibility to develop a supportive learning environment for everyone. Listening with respect and an open mind, striving to understand others' views, and articulating your own point of view will help foster the creation of this environment. We engage our differences with the intent to build community, not to put down the other and distance our self from the other. Being mindful to not monopolize discussion and/or interrupt others will also help foster a dialogic environment.

The following guidelines can add to the richness of our discussion:

- We assume that persons are always doing the best that they can, including the persons in this learning environment.
- We acknowledge that systematic oppression exists based on privileged positions and specific to race, gender, class, religion, sexual orientation, and other social variables and identities.
- We posit that assigning blame to persons in socially marginal positions is counter-productive to our practice. We can learn much about the dominant culture by looking at how it constructs the lives of those on its social margins.
- While we may question or take issue with another class member's ideology, we will not demean, devalue, or attempt to humiliate another person based on her/his experiences, value system, or construction of meaning.
- We have a professional obligation to actively challenge myths and stereotypes about our own groups and other groups so we can break down the walls that prohibit group cooperation and growth.

[Adapted from Lynn Weber Cannon (1990). Fostering positive race, class and gender dynamics in the classroom. *Women Studies Quarterly*, 1 & 2, 126-134.]

We are a learning community. As such, we are expected to engage with difference. Part of functioning as a learning community is to engage in dialogue in respectful ways that supports learning for all of us and that holds us accountable to each other. Our learning community asks us to trust and take risks in being vulnerable.

Here are some guidelines that we try to use in our learning process:

- Listen well and be present to each member of our group and class.

- Assume that I might miss things others see and see things others miss.
- Raise my views in such a way that I encourage others to raise theirs.
- Inquire into others' views while inviting them to inquire into mine.
- Extend the same listening to others I would wish them to extend to me.
- Surface my feelings in such a way that I make it easier for others to surface theirs.
- Regard my views as a perspective onto the world, not the world itself.
- Beware of either-or thinking.
- Beware of my assumptions of others and their motivations.
- Test my assumptions about how and why people say or do things.
- Be authentic in my engagement with all members of our class.

Inclusion and Diversity

Diverse backgrounds, embodiments and experiences are essential to the critical thinking endeavor at the heart of university education. In SPH, students are expected:

1. To respect individual differences, which may include, but are not limited to, age, cultural background, disability, ethnicity, family status, gender, immigration status, national origin, race, religion, sex, sexual orientation, socioeconomic status, and veteran status.
2. To engage respectfully in the discussion of diverse worldviews and ideologies embedded in course readings, presentations, and artifacts, including those course materials that are at odds with personal beliefs and values.
3. To encourage students with concerns about classroom climate to talk to their instructor, advisor, a member of the departmental or SPH EDI Committee, the Assistant Dean for EDI, or the program's director.

Bias Concerns

The Office of the Dean has a [student concern policy](https://sph.washington.edu/students/student-concern-policy), a faculty concern policy and standard HR procedures for staff concerns. Our 2018 climate survey states that most people in SPH do not report bias incidents because they do not know where to go. Students are encouraged to report any incidents of bias to someone they feel comfortable with, including instructors, advisers, or department staff. They can email dcinfo@uw.edu for immediate follow up. Bias concerns can be anonymously and confidentially reported via the online form found here: <https://sph.washington.edu/about/diversity/bias-concerns>. Data are collected by the Assistant Dean for EDI and the Director of Program Operations for Student and Academic Services and tracked for resolution and areas are identified for further training.

Personal Pronouns

We share our pronouns because we strive to cultivate an inclusive environment where people of all genders feel safe and respected. We cannot assume we know someone's gender just by looking at them. We invite everyone to share their pronouns.

Sexual Harassment

Sexual harassment is a form of harassment based on the recipient's sex that is characterized by:

1. Unwelcome sexual advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature by a person who has authority over the recipient when:
 - Submission to such conduct is an implicit or explicit condition of the individual's employment, academic status, or ability to use University facilities and services, or
 - Submission to or rejection of the conduct affects tangible aspects of the individual's employment, academic status, or use of University facilities.
2. Unwelcome and unsolicited language or conduct that creates an intimidating, hostile, or offensive working or learning environment, or has the purpose or effect of unreasonably interfering with an individual's academic or work performance.

If you believe that you are being harassed, or have observed harassment, you can report it to SPH using the [bias concerns link](https://sph.washington.edu/about/diversity/bias-concerns). The University also has designated offices to help you: [SafeCampus](https://www.washington.edu/safecampus/); [Office of the Ombud](https://www.washington.edu/ombud/); [Title IX Investigation Office](https://www.washington.edu/titleix/report/); and [University Complaint Investigation and Resolution Office](https://www.washington.edu/compliance/uciro/).

Religious Accommodation Statement

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy](https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/). Accommodations must be requested within the first two weeks of this course using the [Religious Accommodations Request form](https://registrar.washington.edu/students/religious-accommodations-request/).

Access and Accommodations

Your experience in this class is important to us, and it is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you experience barriers based on a disability or temporary health condition, please seek a meeting with

DRS to discuss and address them. If you have already established accommodations with DRS, please communicate your approved accommodations to your instructor at your earliest convenience so we can discuss your needs in this course.

Disability Resources for Students (DRS) offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (this can include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 or uwdrs@uw.edu (<mailto:uwdrs@uw.edu>) or [disability.uw.edu](http://depts.washington.edu/uwdrs/) (<http://depts.washington.edu/uwdrs/>)

Safety

Call SafeCampus at 206-685-7233 anytime – no matter where you work or study – to anonymously discuss safety and well-being concerns for yourself or others. SafeCampus's team of caring professionals will provide individualized support, while discussing short- and long-term solutions and connecting you with additional resources when requested.

Illness protocol

If you feel ill or exhibit respiratory or other symptoms, you should not come to class. Seek medical attention if necessary and notify your instructor(s) as soon as possible by email. [UW Environmental Health & Safety](https://www.ehs.washington.edu/covid-19-prevention-and-response/face-covering-policy) (<https://www.ehs.washington.edu/covid-19-prevention-and-response/face-covering-policy>) recommends that you wear a well-fitting mask while you are symptomatic.

Additional recommendations include getting your [annual flu shot](https://wellbeing.uw.edu/flu-vaccination/) (<https://wellbeing.uw.edu/flu-vaccination/>) and getting boosted with the updated COVID vaccines (available [at clinics and pharmacies, as well as through UW Medicine](https://www.washington.edu/coronavirus/vaccines/) (<https://www.washington.edu/coronavirus/vaccines/>)) and local health agencies).

Please check your email and CANVAS announcements daily BEFORE coming to class. If we need to conduct class remotely because the instructor or a guest speaker is unable to attend in person, we will send all registered students an email and/or post a CANVAS announcement with a Zoom link for remote instruction or a plan for making up the class.

Excused Absence from Class

Students are expected to attend class and to participate in all graded activities. A student who is anticipating being absent from class due to a Religious Accommodation activity needs to complete the Religious Accommodations request process by the second Friday of the quarter. Students who anticipate missing class due to attendance at academic conferences or field trips, or participation in university sponsored activities should provide a written notice to the instructor ahead of the absence. The instructor will determine if the graded activity can be rescheduled or if there is equivalent work that can be done, as determined by the instructor.

Medical Excuse Notes

Students are expected to attend class and to participate in all graded activities, including midterms and final examinations. To protect student privacy and the integrity of the academic experience, students will not be required to provide a medical excuse note to justify an absence from class due to illness. A student absent from any graded class activity due to illness must request, in writing, to reschedule work as appropriate.

UW Writing and Research Center:

The Odegaard Writing & Research Center (OWRC) offers free, one-to-one, 45-minute tutoring sessions for undergraduate, graduate, and professional writers in all fields at the UW. They will work with writers on any writing or research project, as well as personal projects such as applications or personal statements. Their tutors and librarians collaborate with writers at any stage of the writing and research process, from brainstorming and identifying sources to drafting and making final revisions. For more information or to schedule an appointment, please see their website (<http://depts.washington.edu/owrc> ([Links to an external site.](http://depts.washington.edu/owrc))) (<https://depts.washington.edu/owrc>) or visit in person on the first floor of Odegaard Undergraduate Library.

Microsoft Word: It is beneficial in this course for students to have access to Microsoft Word. The Microsoft Office suite is available for free to all UW students and can be downloaded from this [online site](https://itconnect.uw.edu/wares/uware/microsoft/microsoft-software-for-students/) (<https://itconnect.uw.edu/wares/uware/microsoft/microsoft-software-for-students/>). If you have additional questions, please contact the TA.

Email Policy

Emails received after 5 pm will be answered within 24 hours whenever possible, and not before 9 am the following morning.

Assignments

Required readings will be posted on Canvas and will include:

- IPCC Summary for Policy Makers for the Working Group II contribution to the 6th Assessment Report (2022)
- USGCRP 2023 5th US National Climate Assessment: Human Health chapter
- Romanello et al. 2023 *Lancet Countdown on Health and Climate Change*

Students also will be assigned readings from the recent literature.

Students will complete two partner assignments and one final paper:

Assignment 1: Political Context: Students will work in pairs to develop a policy brief or podcast on an aspect of the national or international political context for managing the health risks of climate variability and change. Written policy briefs should be no more than 1,000 words, excluding references, and should contain at least five references, but may include more. Podcast policy briefs should be approximately 10 minutes long and include information from at least five sources from the peer-reviewed or gray literature. A written bibliography should be included with the podcast. The policy context brainstorming sheet will be due **January 22nd by midnight** (submitted on Canvas)

Grading will be based on a clear statement of the issue(s) chosen, a description of the background and arguments to support a particular perspective, and the group's assessment of the validity and robustness of the chosen issue. The political context policy brief or podcast will be due **January 31st by midnight** (submitted on Canvas, one submission per pair).

Assignment 2: Risk Communication The goal of this assignment is to utilize principles of risk communication and think creatively about how best to present information about the health risks of climate change. Students will work in pairs to develop a poster, podcast, video, or presentation on an aspect of communicating the health risks of climate change and options to manage these risks within the context of a local or national case study. Each media/presentation should include information from at least five sources from the peer-reviewed or gray literature. A written bibliography should be included with the submission.

Grading will be based on a clear statement of the case study chosen and why, a description of how the case study is an example of best practice or an example of where communication could improve understanding or action on managing the risks of climate change, and a discussion of specific approaches to improve communication, with an evaluation of their likely effectiveness. Grading also will consider adherence to the stated guidelines, depth of engagement and comfort with the topic, and quality and style of presentation/media, including adherence to time limits.

Each student in the pair should plan to each spend equal time on the assignment. All students working in a team will receive the same grade.

- Posters should be developed and formatted for submission to a scientific conference.
- Podcasts should be approximately 10 minutes long.
- Videos should be approximately 5 minutes long.
- Presentations should include no more than 12 slides including slides for references. The slides should include a clear statement of the topic covered and learning objectives for the talk as well as a summary of the conclusions of the talk. All material and literature should be cited. Presentations can be solely lecture style or can incorporate short activities, discussions, and group work.

The risk communication assignment will be due **February 14th by midnight** (submitted on Canvas, one submission per pair).

Assignment 3: Peer feedback: During the quarter, each student will watch three risk communications made by classmates and provide them with constructive feedback. Students receive 1 point for each submission of detailed, constructive feedback.

0 - no submission

0.50 - vague feedback that does not address specific strengths or areas of improvement

1.0 - specific, constructive feedback that identifies strengths and constructively points out areas of improvement


The risk communication peer review will be due the week after the risk communication assignment, on **February 28th by midnight** (submitted on Canvas, three submissions for each student).

Final Paper (undergraduate student only): Each student will develop an individual paper on some aspect of managing the health risks of climate variability and change. This can be a subject covered by the readings or some other aspect of climate change that is of particular interest. A one-paragraph summary of the topic for the individual project will be due **February 7th at midnight**. The paper will be 6-10 double-spaced pages and contain a minimum of 5 references that are peer-reviewed, scholarly articles found in scientific journals. The paper will be due **March 8th at midnight**. Please include your last name in the file name.

Final Paper (graduate student only): Each student will develop an individual paper on some aspect of managing the health risks of climate variability and change. This can be a subject covered by the readings or some other aspect of climate change that is of particular interest. A one-paragraph summary of the topic for the individual project will be due **February 7th at midnight**. The paper will be 10-15 double-spaced pages and contain a minimum of 10 references that are peer-reviewed, scholarly articles found in scientific journals. In addition to the added length and number of references, it is expected that this paper reflects a level of thought and analysis reflective of a graduate student. In addition, graduate students will create a one slide lightning talk on their paper topics (less than 5 minutes). Lightning talks will be presented on **March 4th during class**; these can be prerecorded. The paper will be due **March 8th at midnight**. Please include your last name in the file name.



Grading Criteria

- **25%** Political context assignment
- **25%** Risk communication assignment
- **10%** Risk communication peer review
- **40%** Final paper

We will use the UW's grading guidelines available at <http://depts.washington.edu/grading/practices/guidelines.html> 
(<http://depts.washington.edu/grading/practices/guidelines.html>).

Course session schedule:

Class	Instructor	Topic	Assigned Readings
WEEK 1			
Class 1	Ebi	Introduction and overview	<ul style="list-style-type: none"> · IPCC AR6 Working Group II: Executive Summary of Chapter 7 (Health, Wellbeing, and the Changing Structure of Communities) <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter07.pdf> (https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter07.pdf)> · Ebi and Hess 2020 <https://www.healthaffairs.org/doi/epdf/10.1377/hlthaff.2020.01125> (https://www.healthaffairs.org/doi/epdf/10.1377/hlthaff.2020.01125)> · Romanello et al. 2023 <i>Lancet Countdown</i> << https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)01857/fulltext>>
WED			
1/3			
WEEK 2			
Class 2	Ebi	International organizations and processes	<ul style="list-style-type: none"> · US 2023 Lancet Countdown Policy Brief <https://www.lancetcountdownus.org/2023-lancet-countdown-u-s-brief/> (https://www.lancetcountdownus.org/2023-lancet-countdown-u-s-brief/)> · UNFCCC <https://unfccc.int/resource/docs/convkp/conveng.pdf> (https://unfccc.int/resource/docs/convkp/conveng.pdf)> and the Paris Agreement <<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> (https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement)>> · Sultana 2022 << https://www.academia.edu/76832957/The_Unbearable_Heaviness_of_Climate_Coloniality> (https://www.academia.edu/76832957/The_Unbearable_Heaviness_of_Climate_Coloniality)> > https://sdgs.un.org/goals (https://sdgs.un.org/goals)
MON			
1/8			
WEEK 2			
Class 3	Bond	Weather, climate, climate variability, and climate change	<ul style="list-style-type: none"> · IPCC AR6 SPM Working Group I <https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf> (https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf)> · USCRP <i>Executive Summary Climate Science Special Report</i> <<https://www.globalchange.gov/browse/reports/climate-science-special-report-fourth-national-climate-assessment-nca4-volume-i> (https://www.globalchange.gov/browse/reports/climate-science-special-report-fourth-national-climate-assessment-nca4-volume-i)> >>
WED			
1/10			
WEEK 3			
MON	Martin Luther King Day	No class	No reading assignments
1/15			
WEEK 3			
Class 4	Boyer	Framework for understanding and managing risks; vulnerability and adaptation assessments	<ul style="list-style-type: none"> · Vo et al. 2022 (local adaptation) <<https://pubmed.ncbi.nlm.nih.gov/36294229/> (https://pubmed.ncbi.nlm.nih.gov/36294229/)>> · Scheelbeek et al. 2021 (adaptation low-income countries) << https://www.ncbi.nlm.nih.gov/pmc/articles/PMC827660/> (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC827660/)>> · Boyer et al. 2020 (implementation science) << https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2020.01101> (https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2020.01101)>> · Hess & Ebi 2016 (heat early warning systems) << https://pubmed.ncbi.nlm.nih.gov/27788557/> (https://pubmed.ncbi.nlm.nih.gov/27788557/)>> · WHO 2023 (climate-resilient health systems) << https://www.who.int/publications/i/item/9789240081888>>
WED			
1/17			

· WHO 2021 (guidance on vulnerability and adaptation assessments) <<<https://www.who.int/publications/i/item/9789240036383> (<https://www.who.int/publications/i/item/9789240036383>)>>
 · World Health Organization 2021 Health and Climate Change Survey Report <<<https://www.who.int/publications/i/item/9789240038509> (<https://www.who.int/publications/i/item/9789240038509>)>>

WEEK 4

Class 5 Ebi





Methods for assessing current and projecting health risks of climate change

· Ebi et al. 2020 (detection and attribution) <<<https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2020.01004> (<https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2020.01004>)>>
 · Vicedo-Cabrera A et al. 2021 <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7611104/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7611104/>)>>
 · Shindell et al. 2020 (heat) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7125937/pdf/GH2-4-e2019GH000234> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7125937/pdf/GH2-4-e2019GH000234>.pdf)>>
 · McPherson et al. 2017 (Lyme disease) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5730520/pdf/EHP57.pdf> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5730520/pdf/EHP57.pdf>)>>

MON 1/22

Policy context brainstorming sheet





Policy context brainstorming sheet submitted on Canvas by midnight

· Ebi et al. 2021 (overview) <<<https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2901208-3>>>
 · Jay et al. 2021 (management options) <<<https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2901209>>>
 · Thompson et al. 2022 (North America heatwave) <<<https://www.science.org/doi/10.1126/sciadv.abm6860> (<https://www.science.org/doi/10.1126/sciadv.abm6860>)>>
 · Lo et al. 2022 (estimating mortality real time) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7612535/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7612535/>)>>
 · Vicedo-Cabrera A 2018 <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6217994/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6217994/>)>>
 · Arbutnott et al. 2016 (adaptation to heat over time) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4895245/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4895245/>)>>
 · EMDAT (disasters database) <<<https://www.emdat.be> (<https://www.emdat.be>)>>
 · McGregor & Ebi 2018 (ENSO) <<https://pdfs.semanticscholar.org/ef65/a32a0926729af7412ccd08eb97806f5e9b90_pdf_ga=2.211595164.80613401.1670646645-65782526.1670646645>>

WEEK 4

Class 6 Ebi

Thermal extremes and their health risks

· Agabiirwe et al. 2022 (floods and undernutrition) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9590165/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9590165/>)>>
 · Zhang et al 2022 (bushfires and mental health) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9359172/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9359172/>)>>
 · Skinner et al. 2022 (bushfires and disaster preparedness) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9470518/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9470518/>)>>
 · Thurston et al. 2021 (disasters and violence against women) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8112410/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8112410/>)>>
 · Yari et al. 2020 (flooding mortality <<<https://pubmed.ncbi.nlm.nih.gov/33312668/>>>

WEEK 5

Class 7 Ebi

Extreme weather and climate events and their health impacts




MON 1/29

WEEK 5

Class 8 Morin

Infectious disease

Policy context assignment due

· Leung et al. 2023 <<<https://pubmed.ncbi.nlm.nih.gov/36780568/> (<https://pubmed.ncbi.nlm.nih.gov/36780568/>)>>
 · Semenza et al. 2022 <<<https://pubmed.ncbi.nlm.nih.gov/35585385/> (<https://pubmed.ncbi.nlm.nih.gov/35585385/>)>>
 · Semenza and Paz 2021 <<<https://pubmed.ncbi.nlm.nih.gov/34664039/> (<https://pubmed.ncbi.nlm.nih.gov/34664039/>)>>

WED 1/31

Policy context assignment submitted on Canvas by midnight

· Ebi et al. 2021 (burning embers) <<https://iopscience.iop.org/article/10.1088/1748-9326/abeadd> >
<<https://iopscience.iop.org/article/10.1088/1748-9326/abeadd>>

WEEK 6
· Six Americas << <https://climatecommunication.yale.edu/about/projects/global-warmings-six-americas/>>>

Class 9 Ebi Communicating risk · Lim et al. 2022 (disaster risk management) << <https://onlinelibrary.wiley.com/doi/epdf/10.1111/risa.13957> >
<<https://onlinelibrary.wiley.com/doi/epdf/10.1111/risa.13957>>>

MON · Cann et al. 2021 (biases social media) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8064565/pdf/pone.0250656.p>
2/5 · Formanski et al. 2022 (risk communication) << <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9676726/> >
<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9676726/>>>

WEEK 6
Disaster policy and risk management

Class 10 Errett

WED **Short description of final paper topic due** **Short description of final paper topic submitted on Canvas by midnight**
2/7

WEEK 7
· <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9740977/pdf/ijerph-19-15616.pdf> >
<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9740977/pdf/ijerph-19-15616.pdf>>

Class 11 Ebi Air quality · <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9694065/pdf/main.pdf> >
<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9694065/pdf/main.pdf>>

MON · <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9449330/pdf/fpubh-10-947971.pdf>
2/12

WEEK 7
Food insecurity · FAO State of Food Security 2023 < <https://www.fao.org/3/cc3017en/cc3017en.pdf> >
<<https://www.fao.org/3/cc3017en/cc3017en.pdf>>

Class 12 Ebi **Risk communication media assignment due** · Ebi et al. 2021 <<https://iopscience.iop.org/article/10.1088/1748-9326/abfcfa/pdf> >
<<https://iopscience.iop.org/article/10.1088/1748-9326/abfcfa/pdf>>

WED **Risk communication media submitted on Canvas by midnight**
2/14

WEEK 8
President's Day No class No reading assignments
MON
2/19

WEEK 8
Class 13 Pineo Urban issues · Reading assignments TBD
WED
2/21

WEEK 9
Ebi Mitigation policies and health co-benefits · Lelieveld et al. 2023 (fossil fuel mortality) << <https://www.bmj.com/content/383/bmj-2023-077784>>>
· IPCC AR6 WGIII SPM 2022 <<https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf>>
Class 14 · Hamilton et al. 2021 (Paris Agreement) <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7887663/pdf/main.pdf>>>

MON

· Hess et al. 2020 (health co-benefits) <<<https://ehp.niehs.nih.gov/doi/10.1289/EHP6745> >>
(<https://ehp.niehs.nih.gov/doi/10.1289/EHP6745>)_>>

2/26

Biodiversity loss

**WEEK
9**

Class
15 Hess

**Risk
communication
peer review
due**

· Obura et al. (2022) <[https://www.cell.com/one-earth/fulltext/S2590-3322\(22\)00589-9?returnURL=https%3A%2F%2Finkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2590332222005899%3Fshowall%3Dtrue](https://www.cell.com/one-earth/fulltext/S2590-3322(22)00589-9?returnURL=https%3A%2F%2Finkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2590332222005899%3Fshowall%3Dtrue)>
([https://www.cell.com/one-earth/fulltext/S2590-3322\(22\)00589-9?returnURL=https%3A%2F%2Finkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2590332222005899%3Fshowall%3Dtrue](https://www.cell.com/one-earth/fulltext/S2590-3322(22)00589-9?returnURL=https%3A%2F%2Finkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2590332222005899%3Fshowall%3Dtrue))>
· IPBES < <https://www.ipbes.net> > (<https://www.ipbes.net>)>

WED

2/28

Risk communication peer review submitted on Canvas by midnight

**WEEK
10**

Class
16 Ebi

Lighting talks for
518 students No reading assignments

MON

3/4

**WEEK
10**

Class
17 Ebi

Lighting talks for
518 students No reading assignments

WED

3/6

NO Final Exam – Final Paper due March 8th by midnight