

Syllabus

Course Information

GH/ENV H 220, Managing the Health Risks of Climate Change

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TAs

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About the Course

Course Overview

The world has entered the Anthropocene epoch. Humans are the primary drivers of global environmental changes and are changing the planet on the scale of geological forces. Global environmental changes include climate change, ozone depletion, biodiversity loss, nitrogen

fertilization, and ocean acidification. Students will be introduced to the range of global environmental changes and their consequences for human health and well-being, with a focus on climate change and its consequences.

To address these challenges, the United Nations Sustainable Development Goals (SDGs) were agreed in 2015 to achieve a better and more sustainable future for all. They include 17 global goals with targets for 2030. The SDGs aim to end all forms of poverty. The SDGs are unique in that they call for action by all countries, poor, rich, and middle-income to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection.

Climate change is causing injuries, illnesses, and deaths, with any further increase in the global temperature projected to further increase morbidity and mortality from most climate-sensitive health outcomes if actions are not taken to rapidly increase adaptation and reduce greenhouse gas emissions. Of particular concern are heat-related morbidity and mortality and ozone-related mortality if emissions needed for ozone formation remain high. 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 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. Vulnerable populations and regions will be differentially affected, with the potential to increase poverty and inequities.

Students will gain foundational knowledge in the health effects of global environmental changes, particularly climate change, benefits of policies and technologies to reduce greenhouse gas emissions and adaptation needs and strategies.

Learning Goals

- Identify the major global environmental changes and the upstream drivers behind these changes
- Identify the health risks of climate variability and change, including the sources of vulnerability and exposure to those risks
- Identify highly vulnerable populations domestically and globally
- Identify key interventions to promote climate-resilient health systems
- Enumerate key issues in implementing, monitoring, evaluating, learning from, and continuously updating, adaptation policies and programs
- Identify the health co-benefits of mitigation policies to reduce greenhouse gas emissions

Required Texts

Lemery J, Knowlton K, Sorensen C. Global Climate Change and Human Health, 2nd Edition: From Science to Practice. Wiley, 2021

Community Norms

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.

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, and other misconduct are serious violations of the University of Washington Student Conduct Code (WAC 478-120). We expect you to know and follow the university's policies on cheating and plagiarism, and the [SPH Academic Integrity Policy](http://sph.washington.edu/students/academicintegrity/). 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 website.

Grading

Grades

- 30%midterm exam
- 30%final exam
- 30%paper
- 10% reading questions

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 Schedule

Lectures Mondays / Wednesdays 3:00 – 4:20pm

Thomson Hall Room 101

Syllabus Resources

Access and Accommodations

Your experience in this class is important to me. If you have already established accommodations with [Disability Resources for Students \(DRS\)](https://depts.washington.edu/uwdrs/) [\(https://depts.washington.edu/uwdrs/\)](https://depts.washington.edu/uwdrs/), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions 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/) [\(http://depts.washington.edu/uwdrs/\)](http://depts.washington.edu/uwdrs/). 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. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

Religious Accommodations

Required Syllabus Language: "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/) [\(https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/\)](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/) [\(https://registrar.washington.edu/students/religious-accommodations-request/\)](https://registrar.washington.edu/students/religious-accommodations-request/).

Notice to Students - Use of Plagiarism Detection Software

Notice: The University has a license agreement with SimCheck, an educational tool that helps prevent or identify plagiarism from Internet resources. Your instructor may use the service in this class by requiring that assignments are submitted electronically to be checked by SimCheck. The SimCheck Report will indicate the amount of original text in your work and whether all material that you quoted, paraphrased, summarized, or used from another source is appropriately referenced.

Class	Instructor	Topic	Assigned Readings
WEEK 1	Ebi	Welcome to the Anthropocene	No reading assignments

Class 1

WEEK 1

Class 2 Ebi Sustainable Development Goals <https://sdgs.un.org/goals>

WEEK 2

Class 3 Ebi A success story: stratospheric ozone depletion and public health
<https://www.ucsusa.org/resources/ozone-hole-and-global-warming#.VsV2NfIrlU0>
<https://www.ucsusa.org/resources/ozone-hole-and-global-warming#.VsV2NfIrlU0>
<https://www.youtube.com/watch?v=IBu3vltczRw>

WEEK 2

Class 4 Bond Weather, climate, climate variability, and climate change Chapter 1: Primer on Climate Science

WEEK 3

MON ***Martin Luther King Day*** No class No reading assignments
 1/17

WEEK 3

Class 5 Ebi Health exposures: weather, climate variability, climate change, and epidemiologic methods
 Chapter 13: Climate Modeling for Health Impacts
 Chapter 15: Climate Change Health Impact Projections: Looking into the Future

WEEK 4

Class 6 Boyer Framework for understanding and managing risks; vulnerability and adaptation assessments
 Chapter 14: Climate and Health Vulnerability Assessments: New Approaches and Tools for Adaptation

WEEK 4

Class 7 Busch-Isaksen Thermal extremes and their health impacts Chapter 3: Health Impacts of Extreme Heat

WEEK 5 Class 8	Ebi	Air quality	Chapter 5: Degraded Air Quality
WEEK 5 Class 9	MIDTERM EXAM		
WEEK 6 Class 10	Morin	Infectious diseases	Chapter 4: Climate Change Impacts on the Hydrologic Cycle and Waterborne Diseases Chapter 8: Climate and its Impacts on Vector-borne Diseases Paper topic paragraph due
WEEK 6 Class 11	Ebi	Food security	Chapter 9: Food Systems Transformation: Toward Sustainable and Healthy Diets for All
WEEK 7 Class 12	Ebi	Assessing and communicating health risks	Chapter 16: Protecting Environmental Justice Communities from the Detrimental Impacts of Climate Change Chapter 17: Climate Change Communication Chapter 18: International Perspective on Climate Change Adaptation
WEEK 7 Class 13	Ebi	Climate change policy and health co-benefits	Chapter 19: Health Co-Benefits of Climate Mitigation Strategies Chapter 31: The Global Energy Transition and Public Health in a Changing Climate
WEEK 8	President's	No class	No reading assignments

Class	Day		
Class 14			
WEEK 8			Chapter 2: Climate Related Disasters: The Role of Prevention for Managing Health Risks
Class 15	Errett	Disaster policy and risk management	
			Chapter 22: Climate Change and Disaster Risk Reduction
WEEK 9			SPM IPCC Special Report on Climate Change and Land
Class 16	Ebi	Changes in our land and oceans	
			SPM IPCC Special Report on the Ocean and Cryosphere in a Changing Climate
WEEK 9			Chapter 28: Climate Change and Loss of Biodiversity
Class 17	Hess	Biodiversity loss	
			Chapter 29: Ecosystem Services
WEEK 10			
Class 18	Student panel	Ph.D. and MPH students working on climate and health at UW	No reading assignments
WEEK 10			
Class 19	Ebi	Course review and preparation for final exam	No reading assignments
		Thursday, March 17th	
	FINAL EXAM	2:30 - 4:30pm	