

Climate Change and Human Health
EMERGMED-8401
January 2021

Contact information:

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Course Description and Learning Objectives

This course will explore the relationship between our planet's changing climate and human health. Students will receive introduction to the topic of climate change and other threatened planetary boundaries, an understanding of the current and predicted impact on human health, and opportunities for mitigation of and adaptation to these changes. It will consist of didactic lectures, group discussions, activities, and guest speakers. During this course, students will design a project engaging these topics in a healthcare or community setting, create a group presentation focused on the impact climate change will have on their future specialty, and write a narrative piece on an aspect of this topic they find most important.

At the end of this course, the student should be able to:

- Explain the basic science of climate change and discuss the contribution of human activity to global environmental change.
- Describe the mechanisms by which human health is affected by environmental change, for example through changes in disease vectors, exposure to extreme weather, migration, and reduced food security.
- Understand the inequitable distribution of health impacts as a result of climate change, and evaluate strategies to advance environmental justice and equity.
- Recognize the environmental impact of healthcare nationally and globally, and be able to apply best practices to improve environmental sustainability of clinics, hospitals and health systems.
- Understand how to communicate about climate change and its health impacts to patients, colleagues and other health professionals, policy-makers, and the public.
- Articulate the roles and responsibilities of physicians in mitigating and adapting to the impact of climate change on human health.

Course Requirements and Grading

Successful completion of this course requires achieving each of the following items:

- Individual project proposal (due January 29th, 5pm): A written proposal for a project at the intersection of climate change and health that can reasonably be completed before graduation. Proposals should include a background, project objectives, project design, anticipated significance and any relevant citations. Proposals should be 500-800 words in length. If funding

would be necessary or helpful for completion of the proposed project, please include details of expected budget needs. A template for project proposal submission will be provided.

- Examples of relevant projects include conducting a quality improvement project to improve sustainability in a hospital or clinic setting, hosting an educational event for medical students or community members, or an advocacy campaign for specific local, state or national policy.
- Small group presentation (*due January 21st*): A presentation using what you've learned in the course as well as your own research, to discuss the anticipated impacts of climate change and opportunities to mitigate risk to patients, within your anticipated future specialty. Students will be placed in small groups of 3-4 students based on specialty interest. The presentation should not exceed 20 minutes in length.
- Narrative piece (*due January 29th, 5pm*): As part of a workshop during the final week of the course, students will write a narrative or persuasive piece in the form of a op-ed, letter to the editor, or blog post. Length should meet the requirements of the intended medium. As part of submission, students should include their intended outlet (i.e. Dose of Reality blog, JAMA Commentary, Newspaper opinion piece, etc.)
- Attendance: Students will also be expected to attend daily schedule discussions and activities, and be prepared for these through given prework in order to facilitate a thoughtful and effective discussion. Please inform the course instructor at the start of the course about any anticipated absences.

Grading

- This course will be graded in a satisfactory/fail manner. A satisfactory grade will be achieved through attendance, active participation, and completion of the projects as listed above.

Materials for the course will be available through GoogleDrive at this link:

https://drive.google.com/drive/folders/1HwNdp-BhWcBHAA-FGXMyZB3-56RkP_HK?usp=sharing

Zoom link: <https://umich-health.zoom.us/j/96766118219>.

	Monday	Tuesday	Wednesday	Thursday	Friday		
Date	January 4th	January 5th	January 6th	January 7th	January 8th		
Prework	Read Golderts (2019) and Bennick (2020)	None	Watch the 'One Lecture' Summary of Climate Change	Read Chapter 1: Climate Change and Human Health	Watch Cooked , Read Chapter 2: Temperature Related Death and Illness		Key
Week 1	Orientation (2 hour), 10am		Guest speaker - Climate Change (1.5 hours), 10am Dr. Richard Rood	Guest Speaker - Overview of climate and health (1.5 hours), 10am Dr. Kristie Ebi	Guest speaker - Temperature related illness (1 hour), 9am Dr. Marie O'Neill		Prework Guest speaker Debrief/course assignments Workshops
		Climate change and health - interdisciplinary panel (2 hours), 5pm Dr. Sue Anne Bell, Dr. Marie O'Neill, Dr. Richard Rood, Dr. Brent Williams **This event is open to public health, nursing, public health, SEAS and medical students	Debrief (30 min)	Debrief (30 min) + Climate Vulnerability	Debrief (30 min) Discussion - 'Cooked: Survival by Zip Code' documentary (30 min)		Journal club
Date	January 11th	January 12th	January 13th	January 14th	January 15th		
Prework	Read articles: Chivellio (2015) , Dobson (2009)	Read Lurie (2015) , Skim Chapter 4: Extreme Events	Read Carton (2013) , Skim Chapter 5: Vector-borne disease & Chapter 6: Water-related Illness	Read Hayes et al (2018) , Skim Chapter 8: Mental Health	None		
Week 2	Guest Speaker - Biodiversity, climate change and human health (1.5 hour), 9am Dr. Johannes Foufopoulos	Guest speaker - Direct & indirect health effects of extreme events (1 hour), 9am Dr. Lori Byron, Dr. Robert Byron	Guest speaker - vector and water-borne disease (1.5 hour), 9am Dr. Joseph Eisenberg	"My climate story" (1.5 hours), 9am Dr. Nancy Barbias	Discussion - Environmental health ethics (1.5 hours), 9am Dr. Adam Marks		
	Debrief (30 min)	Journal club (indirect effects of storms) - Jonathan McBride Debrief (30 min)	Debrief (30 min)	Journal club (mental health) - Alex Kolenda	Debrief (30 min)		
Date	January 18th	January 19th	January 20th	January 21st	January 22nd		
Prework	None	Read Brook (2014) , Read Chapter 3: Air Quality Impacts	Check out MIT Ed-Roads Climate Simulator	None	None		
Week 3	Martin Luther King Jr Day	Guest lecture - Respiratory illness (2 hours), 10am Dr. Toby Lewis	Workshop - Advocacy with policy makers (3 hours), 9am Dr. Lisa DeBuono & Dr. Nan Barbias	Community Engagement & Individual Action (1 hour), 9am Julie Roth	Discussion - Environmental health history taking (30 min), 10am - Will Fetters Clinical case studies (1.5 hours)		
		Journal club (zoonotic disease, bats) - Robin YU Debrief (30 min)		Guest lecture - Sustainability in anesthesiology (1 hour), 10am Dr. Ben Cloyd Presentations (1 hour)			
Date	January 25th	January 26th	January 27th	January 28th	January 29th		
Prework	None	Watch A3 video , Review A3 Guide , Watch Dr. Bole's sustainability lecture	Watch Ed Malbach video	None	None		
Week 4	Workshop - Narrative Advocacy (3 hours), 9am Dr. Jen Insaude	Activity - Quality Improvement for Sustainability (1 hour), 9:30am Dr. John Bill	Narrative sharing with Dr. Barbias (30 min), 11:30 am Guest speaker - Measuring environmental impact (1 hour), 12pm Nick Kemp		Final project presentations (1 hour), 9am Group Presentation (30 min), 10am Wrap-up/Feedback (1 hour)		
		Guest speaker - Sustainability in healthcare (1 hour), 11am Dr. Aparna Bole Debrief (30 min)	Communication with patients (1 hour), 1pm Dr. Andrew Lewandowski Debrief (30 min)				