

MCS Selective

Health and Society in the Context of Climate Change

Co-Instructors

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Syllabus

Detailed Description:

Climate change is the mega-challenge of our generation and will continue to influence how we perform medicine and deliver care. Medical schools around the country and abroad have begun educating the next generation of future physicians on the intimate interrelation between climate change and health via electives. Inspired by the Disseminated Climate Curriculum proposed by Emory University SOM, this elective at Renaissance SOM seeks to provide future physicians with an understanding of how climate change impacts the health of their patients via both the pathophysiology but also the context within which the illness brews. It is a brief exposure to the many ways in which climate change has been impacting our patients and how we can bring attention to it. The course will start with a brief review in climate science, explore the unequal burden of climate change on world populations and discuss the impacts of climate change on air quality, heat, migration and nutrition.

Educational Objectives

At the conclusion of this course, you will have the ability to:

1. Be cognizant of and be able to converse about the impact of climate change on patient health.
2. Understand climate change to be a social determinant of health.
3. Discuss climate solutions and incorporation of these into our healthcare delivery.

Topics and Dates

Time: 1:00- 3:00PM

8/23/2022 Week 1 Introduction/Community and Social Determinants of Health

The purpose of this class is as follows:

1. Define climate change, Anthropocene and planetary health.
2. Discuss the unequal burden of climate change on populations that least contribute to climate change.
3. Discuss urban planning, discriminating policies and structural inequities that increase the risk of harm from environmental exposures.

Articles to Read:

Ragavan, M. I., Marcil, L. E., & Garg, A. (2020). Climate change as a social determinant of health. *Pediatrics*, 145(5).

Hsu, A., Sheriff, G., Chakraborty, T., & Many, D. (2021). Disproportionate exposure to urban heat island intensity across major US cities. *Nature communications*, 12(1), 1-11.

9/6/2022 Week 2 Turning up the Heat!

This session focuses on the effects of extreme heat on the human body. We will start out the class discussing heating and cooling mechanisms of the human body. We will then go on to discuss the health effects of extreme heat, focusing on heat strokes and heat stress nephropathy. The session will then focus on infectious diseases, particularly malaria and other vector-borne diseases. The session will conclude with a discussion on heat waves to set the stage for next class with the focus on air quality.

Readings for the session:

Mora, C., Counsell, C. W. W., Bielecki, C. R., & Louis, L. V. (2017). Twenty-Seven Ways a Heat Wave Can Kill You: *Circulation: Cardiovascular Quality and Outcomes*, 10(11). <https://doi.org/10.1161/circoutcomes.117.004233>

Parham, P. E., & Michael, E. (2010). Modeling the effects of weather and climate change on malaria transmission. *Environmental health perspectives*, 118(5), 620-626.

9/13/2022 Week 3 The Air We Breathe and The Food We Eat

The session will begin with discussion of air quality and greenhouse gases. It will then progress to discussion on asthma, and the socioeconomic and zoning disparities that impact lung health disproportionately. We will then shift focus back on cardiovascular health to look at how climate change exacerbates air pollution, which in turn may exacerbate atherosclerosis. Our session will then shift gears and focus on nutrition. We will establish the connection between food insecurity, climate change and the need for discussing a sustainable diet.

Readings for the session:

Peters, A., Schneider, A. Cardiovascular risks of climate change. *Nat Rev Cardiol* **18**, 1–2 (2021). <https://doi.org/10.1038/s41569-020-00473-5>

Benjamin Gutschow, et al. The intersection of pediatrics, climate change, and structural racism: Ensuring health equity through climate justice, *Current Problems in Pediatric and Adolescent Health Care*, Volume 51, Issue 6, (2021). <https://doi.org/10.1016/j.cppeds.2021.101028>. (<https://www.sciencedirect.com/science/article/pii/S1538544221000833>)

10/11/2022 Week 4 Climate Compassion

Our last session will take a look at climate migration. We will discuss the concept of the climate refugee and discuss how communities can build resilience in the face of climate change.

We will discuss climate solutions and the positive effect on mental health, and explore how medical professionals can advocate for climate solutions with peers and patients.

Readings for the session:

Compassion in Crisis by Weiner and Frederick

The Great Climate Migration by Abrahm Lustgarten

Evaluation

Evaluation

The course is P/F. Attendance is required for each class. Participation in class lessons is required. A reflection of 1 page in length, single spaced, Times New Roman will be required at the end of Week 2 and Week 4.

Number of Students

Minimum 3

Maximum 12