

SIO 116 – Climate Change and Global Health
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Time: Tue/Thu 2:00pm-3:20pm
Room: Vaughan 100

Course Short Description:

Climate change is the biggest global health threat of the 21st Century. This course will describe the links between our climate and population health in different contexts around the globe. The course will be organized into two sequences as follows:

1. Climate Change and Global Health: Understanding the mechanisms

Covered Topics: Climate change in our society; Understanding anthropogenic climate change; The direct and indirect links between climate change and health covering different topics such as extreme weather events such as extreme heat or wildfires, vector borne diseases, population migration, mental health, urban planning and air pollution, food security or COVID-19.

2. Responding to Climate Change: Possible solutions

Covered Topics: Environmental and climate Injustice; Equity in public health policies; introduction to mitigation and adaptation policies; Adaptation case studies: including heat warning systems, greening strategies, transportation and active mobility; low emission zones ; The notion of public health co-benefits of climate change mitigation: health in all policies

The course participation will be an important component of this course. Students will be evaluated through 4 components:

- Group Presentation [on Week 6] – 30%
 - Students in groups of 4-5 will be assigned special topics, based on readings that they will be responsible for discussing in specially designated weekly discussion sessions
- One Written Assignment [flexible deadline] – 25%
 - Option #1 - Topic Paper (guidelines will be posted on Canvas)
 - Option #2 – Climate and Health analysis in California (guidelines will be posted on Canvas)
- Final Photo Voice Project – 25%
 - Guidelines will be posted on Canvas and discussed in class
- Class participation – 20%

There is no prerequisite for this course.

Class Schedule:

Week and dates	Topic
1 - Jan 4, 6	Introduction to the course and overview of the quarter Climate change in our society
2 – Jan 11, 13	Understanding anthropogenic climate change [Guest Lecturer: Alexander Gershunov] The Scientific Consensus on Climate Change [class discussion with assigned readings]
3 – Jan 18, 20	The environment as a social determinant of health Introduction to Environmental Health and Toxicology
4 – Jan 25, 27	Introduction to Epidemiology Environmental Epidemiology in Practice
5 – Feb 1, 3	Introduction to remote sensing [Guest Lecturer: Armin Schwartzman] Modelling environmental exposures [Guest Lecturer: Rosana Aguilera]
6 – Feb 8, 10	Group Presentations
7 – Feb 15, 17	Environmental and Climate Justice Measuring inequalities in health and implications for public health policies
8 – Feb 22, 24	An overview of policies to address Climate change and its impacts Social Vulnerability and Climate Change, a focus on Puerto Rico [Guest Lecturer: Isabel]
9 – Mar 1, 3	Designing, implementing and evaluating adaptation strategies The links between COVID-19 and Climate Change
10 – Mar 8, 10	Public health co-benefits of mitigations policies [Guest Lecturer: Katie Crist] Summary
Date TBD	Final Photo Voice Presentations

Readings

No textbook is required for this course

Assigned readings will be posted a few days before each class

Below is a selection of some readings that will be discussed in class

- Oreskes, N. (2004). The scientific consensus on climate change. *Science*, 306(5702), 1686-1686.
- Weaver, A. J., & Zwiers, F. W. (2000). Uncertainty in climate change. *Nature*, 407(6804), 571-572.
- Zhu, Z., Lu, L., Zhang, W., & Liu, W. (2021). AR6 Climate Change 2021: The Physical Science Basis. Summary for Policymakers IPCC: Geneva, Switzerland.
- McMichael, A. J. (2013). Globalization, climate change, and human health. *New England Journal of Medicine*, 368(14), 1335-1343.
- Patz, J. A., Campbell-Lendrum, D., Holloway, T., & Foley, J. A. (2005). Impact of regional climate change on human health. *Nature*, 438(7066), 310-317.
- Watts, N., Amann, M., Ayeb-Karlsson, S., Belesova, K., Bouley, T., Boykoff, M., ... & Costello, A. (2018). The Lancet Countdown on health and climate change: from 25 years of inaction to a global transformation for public health. *The Lancet*, 391(10120), 581-630.
- Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Beagley, J., Belesova, K., ... & Costello, A. (2021). The 2020 report of the Lancet Countdown on health and climate change: responding to converging crises. *The Lancet*, 397(10269), 129-170.
- Knowlton, K., Kulkarni, S. P., Azhar, G. S., Mavalankar, D., Jaiswal, A., Connolly, M., ... & Sanchez, L. (2014). Development and implementation of South Asia's first heat-health action plan in Ahmedabad (Gujarat, India). *International journal of environmental research and public health*, 11(4), 3473-3492.
- Cheng, J. J., & Berry, P. (2013). Health co-benefits and risks of public health adaptation strategies to climate change: a review of current literature. *International journal of public health*, 58(2), 305-311.