SIO 116 – Climate Change and Global Health

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Course Description:

Climate change is the biggest global health threat of the 21st Century. This course will decode the exchangeable links between our climate and population health in different contexts around the globe. There is no prerequisite for this course.

The course will be organized into two 2 Components 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; The impact of climate change on global health: the infectious diseases; The impact of climate change on global health: the extreme weather events*

2. Responding to Climate Change: Possible solutions
Covered Topics: *The climate change impacts on society: a matter of injustice?; Mitigation policies: fighting against the climate change phenomena ; Adaptation policies: dealing with incompressible climate change impacts ; A step-by-step guide to design, implement and evaluate an adaptation policy: the example of heat warning systems ; The notion of public health co-benefits of climate change policies: health in all policies*

The course participation will be an important component of this course. 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. The final grade will be based on groups presentations about a topic the students will select. An individual project, that can be a written report or a photo voice project, conducted across the whole quarter will be also planned.

Class Schedule:

Week	Topic
1	**Introduction to the course and preview – Climate change in our society**
2	**Understanding anthropogenic climate change**
3	**The direct and indirect links between climate change and health**
4	**Introduction to Environmental epidemiology and toxicology**
5	**Understanding weather extremes – case studies including droughts and extreme rainfalls**
6	**Case studies on Vector Borne diseases, Water Sanitation and Hygiene (WaSH) and Heat Waves**
7	**Environmental Justice and Health Inequalities**
8	**Policies to address Climate change and its impacts**
9	**Design, implementing and evaluating adaptation policies - Case studies**
10	**The notion of public health co-benefits of climate change policies**
	Final Exam – March 17th-24th

Readings

1. Climate Change and Global Health: Understanding the mechanisms

- 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.
- IPCC Fifth Assessment Report; "Climate Change 2014: Synthesis Report"
- 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.
- McMichael, A.J. (2004). Environmental and social influences on emerging infectious diseases: past, present and future. Philos Trans R Soc Lond B Biol Sci, 359, 1049–1058
- Suk, J. E., & Semenza, J. C. (2011). Future infectious disease threats to Europe. American Journal of Public Health, 101(11), 2068-2079.
- Haines, A., Kovats, R. S., Campbell-Lendrum, D., & Corvalán, C. (2006). Climate change and human health: impacts, vulnerability and public health. Public health, 120(7), 585-596.
- Luber, G., & McGeehin, M. (2008). Climate change and extreme heat events. American journal of preventive medicine, 35(5), 429-435.

2. Responding to Climate Change: Possible solutions

- Broome, J. (2008). The ethics of climate change. Scientific American, 298(6), 96-102.
- IPCC Working Group III Summary for Policymakers
- IPCC Working Group II Summary for Policymakers
- Ebi, K. L., & Semenza, J. C. (2008). Community-based adaptation to the health impacts of climate change. American journal of preventive medicine, 35(5), 501-507.
- 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.
- Benmarhnia, T., Bailey, Z., Kaiser, D., Auger, N., King, N., & Kaufman, J. (2016). A Difference-in-Differences Approach to Assess the Effect of a Heat Action Plan on Heat-Related Mortality, and Differences in Effectiveness According to Gender, Age, and Socioeconomic Status (Montreal, Quebec). Environmental health perspectives.
- 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.