Climate change is one of the greatest challenges facing humanity. Among the risks we face are new threats to health. These emerging health risks call for new science that identifies the complex relationship between climate variability and health outcomes, as well as a new workforce of professionals who can translate that science into action.

In 2012, we launched the first Climate and Health Master of Public Health certificate program in the nation.

**MISSION**

- Fostering innovative, cross-disciplinary scholarship on the human health dimensions of climate change
- Advancing society’s capacity to understand, anticipate, and prevent adverse health consequences related to climate change
- Elucidate these mechanisms, to identify the precise role that climate plays in long-term health trends
- Projecting future impacts by modeling plausible climate scenarios
- Developing and applying new methods to assess health co-benefits of emerging climate mitigation policies at local, regional, and global scales

**RESEARCH**

Climate change affects health through complex mechanisms that include shifts in the global atmosphere, in regional ecology, in social structures, and in human exposures and behaviors.

We also study the local health benefits that can be achieved when actions are taken to reduce greenhouse pollutants, such as CO2, methane, and black carbon. Many policies that reduce emissions of such pollutants also deliver immediate and localized environmental co-benefits, such as lower rates of asthma.
Kate Weinberger, a PhD student with a background in both ecology and climate change, has been investigating links between climate, airborne pollen, and allergic diseases in the NYC metropolitan area. In a 2011 journal article, she examined evidence for the development and exacerbation of allergic disease in children related to outdoor pollen and mold concentrations. Her findings underscored the need for improved public-health strategies such as humidity control, air filtration and ventilation, and improved public-health messaging.

**MPH CERTIFICATE PROGRAM**

The certificate in the Columbia MPH program is designed for master’s students who want to specialize in addressing climate-related health issues, translating climate and health science into action, and designing public health interventions. Sample courses include Public Health Impacts of Climate Change, Atmospheric & Climate Science for Public Health, and the Climate and Health Weekly Seminar.

**PHD PROGRAM**

Students in the PhD program train for professional careers where they will conduct advanced research, teach, and/or hold in leadership positions in the private and public sector. Doctoral students work closely with faculty mentors to carry out advanced research to better understand mechanisms by which climate change impacts human health.

**Key Areas of Investigation**

- The Consortium for Climate Risk in the Urban Northeast (CCRUN) seeks to assess and manage risks from climate variability and change in urban areas, with a special focus on the Philadelphia to Boston urban corridor. CCRUN health research examines current and future vulnerability to heat and air pollution events in the region.
- On a global scale, using improved cookstoves has the potential to significantly improve the health of women and children while also reducing global warming. A randomized intervention trial in Ghana is testing the effects of improved cookstoves on infant health outcomes, including rates of low birth weight and acute lower respiratory infections in the first year of life.
- Fine particles in the air have been linked to mortality around the world. We are studying the health and climate benefits that can be achieved through controlling emissions from a range of pollution sources.
- Forecasting West Nile Virus activity using meteorological and hydrological observations can help predict health risks. A study looking at the virus in Suffolk County, NY, found that wet winters, dry early summers, and warm spring temperatures all favor the increased prevalence of West Nile Virus in mosquitoes.
- Climate warming is changing the seasonal patterns of pollen and allergy in many parts of the world. Program researchers recently reported links between peaks in tree-pollen concentration and over-the-counter allergy medication sales in NYC.

**Our supporters:** National Institutes of Health (NIH), NIH Research Training Program, National Oceanic and Atmospheric Administration, National Science Foundation, The Earth Institute at Columbia University, Department of Transportation, NY State Energy Research and Development Authority, Centers for Disease Control and Prevention, U.S. Department of Homeland Security, Research and Policy for Infectious Disease Dynamics program of the Science and Technology Directorate, NIH Models of Infectious Disease Agent Study, Environmental Protection Agency

**STUDENT SPOTLIGHT**

Kate Weinberger, a PhD student with a background in both ecology and climate change, has been investigating links between climate, airborne pollen, and allergic diseases in the NYC metropolitan area. In a 2011 journal article, she examined evidence for the development and exacerbation of allergic disease in children related to outdoor pollen and mold concentrations. Her findings underscored the need for improved public-health strategies such as humidity control, air filtration and ventilation, and improved public-health messaging.

**FACULTY**

- Patrick L. Kinney (Program Director)
- Jeffrey Shaman (Assistant Director)
- Darby Jack
- Kim Knowlton
- Rachel L. Miller
- Matthew J. Neidell
- Perry Sheffield
- Madeleine Thomson

**CONTACT INFORMATION**

Haruka Morita, MPH, CPH
Program Coordinator
Columbia Climate and Health Program
722 West 168th Street | New York, NY 10032
hm2487@columbia.edu | 212-305-5342

mailman.columbia.edu