# Climate Change and Public Health:
# What does climate change mean for the people of Mongolia?

**Postponed until summer 2023**

**Course Instructors:**

- Prof. Cathy Whitlock, Institute on Ecosystems, Montana State University, whitlock@montana.edu
- Susan Higgins, MS, Center for American Indian and Rural Health Equity, susan.higgins@montana.edu
- PLUS invited medical and climate science instructor experts

**Course Overview:**

Warmer temperatures are bringing more fires, droughts, and extreme weather events to regions around the world, including Mongolia, and these changes are threatening water supplies, natural resources, and the people who depend upon them. Participants in this course will have the opportunity to spend time in the field with experts in climate science, public health, and natural resource management and examine firsthand the connections between climate change, the environment and human health in one of the most wild and scenic places on Earth.

Together, we'll witness some changes underway in a range of settings from Mongolia's arid lands to its forested mountains. We'll also meet with healthcare practitioners to gain insight about the climate-related health challenges facing local and urban communities.

In recent decades, Mongolia has warmed faster than the global average, and much of the region has experienced unprecedented drought. A wealth of reports and studies now points to the enduring threats of climate change on human health around the world. In Mongolia, these threats include increased wildfire and smoke (pulmonary disease and asthma), more days of extreme heat (heat stroke and depression), earlier snowmelt and ensuing flood (vector borne disease), and water shortages (contaminated water and food security issues). Public health responses to climate change require robust communication among scientists, public health

professionals, and local medical providers. These climate-health connections are weakest in places that have inadequate medical services and facilities.

Mongolia, with its vast landscapes, limited infrastructure, and large indigenous population, is particularly vulnerable to climate change. You'll come away from this course with a good understanding of climate and health issues facing this remote region as well as the social-economic disparities associated with climate-change adaptation. Hopefully, you'll also see new opportunities to help chart a resilient and equitable future for Mongolia as well as your own country.

The class will start with discussions with government, health and climate leaders in Ulaanbaatar, then travel to the countryside to see how climate change is impacting traditional nomadic practices and public health delivery in rural areas. We'll meet with natural resource managers, public health officials, herders, climate scientists and community members in facilitated conversations. Our travels begin in the arid region of Kharkhorin in the Övörkhangai Province, and then we'll head to the Eg-Uur Valley of Khovsgol Province, a region of stunning lakes and mountains. We'll meet with healthcare providers in rural community clinics and herders and resource managers observing environmental change. We'll observe and discuss the changing landscape through lectures, field experiences and site visits, conversations and readings, but there will also be plenty of time to learn and explore on your own. Each student will explore a topic of their own interest, and as a group we'll ponder some of these questions:

- What are the global and local trends in climate with regard to extreme heat, extreme cold, drought, flooding, fires and smoke?
- How has climate change affected natural resources, water and food security, and human health globally and in Mongolia?
- How are vulnerable populations affected and responding to climate change and how is indigenous knowledge offering unique perspectives for resilience?
- What are the demographic and socioeconomic trends in Mongolia and current trends in health status/services?
- What actions can health agencies, rural clinics, and health certification programs take to respond and adapt to climate change, and what messages will be most effective for clinics and communities, community planning, monitoring, policy change, and personal action?

This course is a great fit for those interested in climate science, environmental studies, global health, public health, medicine, health disparity research, ecotourism, community engagement, communications, journalism, and policy development. All are welcome as we assess together our collective global climate future.

**Anticipated Course Activities:**

- June 20 - 21: Course and Program orientation in Ulaanbaatar. Gain an introduction to Mongolian culture and language, history and contemporary issues. Meet course faculty and participants, begin course sessions with a few agency meetings and review of air quality

issues, and engage in team building through visits to some of the local sites as time allows (e.g., Gandan Monastery, markets, museums).

- June 22 - 23: Travel to the ancient capital of Mongolia, Kharkhorin, to explore the landscape and rural areas to talk with experts and herders. During our travel route, we'll observe how Mongolia's ecosystem has shifted in semi-desert; and how these shifts can and do impact human health.
- June 24 - 25: Travel to Khovsgol Province and Eg-Uur Valley via Moron, the city center of the Khovsgol Province. A visit to a few clinics in Moron.
- June 26 - July 1: Class sessions in the forest-steppe of the Eg-Uur Valley and visits to local towns (soums) and river camps.
- June 30 - July 2: Return to Ulaanbaatar with sessions along the way.
- July 2-4: Debrief and final ACMS Field School event, and a chance to browse in Ulaanbaatar, and plan for further research and explorations in Mongolia and beyond.

Orientation in Ulaanbaatar.
June 20-24. Classes at Gandan Monastery and a visit to Choijin Lama.
June 25-27. Drive to Erdenet. Tour Amarbayasgalant Monastery. Night at a ger camp.
June 28. Drive to Erdenbulgan. Arrive at Upper Uur Camp. Classes in Mongolian Buddhism and Central Asian History.
We'll visit Dayan Derkh Monastery and learn about their unique conservation work; meet with local nomadic families; and visit Javsomdolum, a local shaman woman.
We'll ride on horseback trips to sacred caves and explore the unmatched beauty of the Eg-Uur River valley.
Drive to Karakorum.
Tour of the Erdene Zuu Monastery. Wrap-up.

**About the Instructors:**

**Both instructors are co-authors of the recent publication**: Adams A, Byron R, Maxwell B, Higgins S, Eggers M, Byron L, Whitlock C. 2021. **Climate change and human health in Montana: a special report of the Montana Climate Assessment**. Bozeman MT: Montana State University, Institute on Ecosystems, Center for American Indian and Rural Health Equity. 216 p. https:// doi.org/10.15788/c2h22021.

**Dr. Cathy Whitlock** is a Regents Professor Emerita in Earth Sciences at Montana State University and a Fellow of the Montana Institute on Ecosystems. She is lead author of the 2017 Montana Climate Assessment, and co-lead of the 2021 Greater Yellowstone Climate Assessment. Cathy is nationally and internationally recognized for her scholarly contributions and leadership

activities in the field of past climate and environmental change. She has published over 200 scientific papers on the ecological history of Yellowstone and similar regions around the world. Cathy is a Fellow of the Geological Society of America and the American Association for the Advancement of Science, and in 2018, she became the first person from a Montana university to be elected to the National Academy of Sciences.

**Susan Higgins, MS,** engages in water resources planning, landscape collaboratives and drought resiliency. She has consulted with the Center for Large Landscape Conservation, The Tributary Fund and The Taimen Fund, where she facilitated research activities, leadership exchanges and species and drought resiliency planning in Mongolia, Bhutan and Montana, all with an emphasis on developing best practices for scientists working with faith and indigenous communities. Prior, she directed research communications and water education at the Montana State University Water Center. Susan now works to connect health science researchers with rural and Native Montana communities for the Center for American Indian and Rural Health Equity.

**Other Instructors TBA:** We are in the process of identifying a Mongolian public health professional to join in field instruction, and are working to bring along an American physician, and a Native American professional in Montana who has developed climate and health adaptation plans for his tribes. We are also setting up meetings with representatives of Mongolia's Ministry of Health; the Mongolian National Emergency Management Agency; Ministry of Environment and Tourism; Information and Research Institute of Meteorology, Hydrology and Environment; and other key partners like the Ministry of Food, Agriculture and Light Industry.