



Disease Ecology in Health and Medical Geography: History, Progress, and Innovations

Speaker: **Distinguished Professor Michael Emch**
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Chair: **Assoc Professor Wang Yi-Chen**
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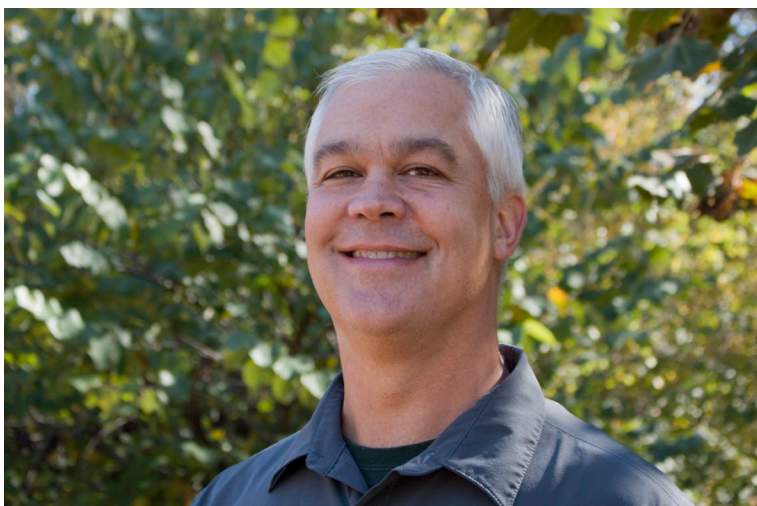
Date/Time: 13 October 2025, 3pm

Place: Geography Seminar Room, AS2 #03-02

Abstract

This paper describes the development of the disease ecology tradition of health and medical geography including some key themes and innovations. It first grounds disease ecology in the history of ecology from the natural sciences and the human ecology traditions within the social sciences. Disease ecology applications have modern roots in the decades before and after World War II through colonial and tropical medicine as well as work conducted in an array of other sites, including Nazi Germany, the Soviet Union, and the United States when there were large efforts to create infectious diseases maps and conduct ecological analyses of diseases. The field progressively broadened in scope, especially during the 1990s and beyond, with several innovations including the application of political ecology approaches to the study of health and disease. Two recent innovations are summarized through case studies: disease ecology approaches in health intervention research and applications of theory and methods from landscape genetics.

About the Speaker



Dr. Emch is a health geographer who is a member of the UNC Infectious Disease Epidemiology and Ecology Lab, and he leads the Spatial Health Research Group. He has published widely in the subfield of disease ecology, mostly of infectious diseases of the developing world. His research is on diverse topics such as the role of population-environment drivers in pathogen evolution, how social connectivity and human mobility contribute to disease incidence, and using environmental indicators to predict infectious disease outbreaks. His present research includes a study to evaluate the effectiveness a malaria vaccine in Malawi, Ghana, and Gabon, studies on the landscape genetics of swine and H5N1 avian influenza, and a study on the spread of drug-resistant malaria in Africa.

Convenors

Professor Brenda Yeoh

Professor Dariusz Wojcik

Assoc Prof Lin Weiqiang

Dr Remi Luo