Yale SCHOOL OF PUBLIC HEALTH

Public Health Modeling Unit
Seminar Series

Sarah Cobey, PhD

**Associate Professor in the Department of Ecology and Evolution,
the Program in Biophysics, and the Committee on Microbiology
University of Chicago**

Immune memory, vaccination, & the dynamics of selection on influenza

November 15, 2021
12 - 1 pm EST   (US & Canada)

That seasonal influenza viruses evolve rapidly to escape immunity is well understood. It is less well understood exactly how protective immunity to influenza arises and varies across individuals, age groups, and populations, and how these immune selective pressures contribute to year to year antigenic evolution and variation in epidemic sizes. Dr. Cobey will synthesize evidence from observational studies, trials, and epidemiological and evolutionary modeling to highlight what we know (and don't know) about the coevolution of influenza and adaptive immune responses. She proposes that a better understanding of the dynamics of adaptive immunity is key to improving epidemic forecasts and vaccination strategies.

The Cobey Lab investigates the coevolution of pathogens and hosts' adaptive immunity, using computational and mathematical tools to test hypotheses and to advance theory. Dr. Cobey's early work focused on the evolutionary consequences of immune-mediated competition between different pathogen strains, including influenza, pneumococcus, and human papillomavirus. More recently, her focus has expanded to include the dynamics of the host immune response: how chance, infection history, vaccination, age, and other factors shape the evolution of antibody repertoires over time. This research involves linking immunology, epidemiology, and virology with ecological and evolutionary principles, and in the hope it can lead us to better vaccination strategies.

A graduate of Princeton University (2002), Cobey obtained her PhD in Ecology and Evolution from the University of Michigan in 2009, and completed a NIH Ruth Kirschstein fellowship at the Harvard School of Public Health in 2013. At the University of Chicago, she has been awarded a NIH New Innovator Award, a McDonnell Foundation Complex Systems Scholar Award, and a Neubauer Faculty Development Fellowship.

EPH 580 01 (FA21): Seminar for Modeling in PH

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