



QUANTITATIVE & SYSTEM BIOLOGY COLLOQUIUM: Phylogenomics and the Diversity and Diversification of Microbes

Jonathan Eisen
Professor, Evolution, and Ecology, Medical Microbiology and
Immunology
Genome Center, UC Davis



Date:

10/14/2022

Time:

2:30 PM-3:45 PM

Location:

COB2 140

About The Speaker:

Jonathan Eisen Bio

Jonathan Eisen is a Professor at the University of California, Davis with appointments in the Genome Center, the Dept. of Evolution and Ecology, and the Dept. of Medical Microbiology and Immunology.

His current research focuses on the evolution, ecology, genomics and function of communities of microbes and how microbes interact with each other and with hosts as part of host microbiomes. His work has covered a diverse array of microbes, from pathogens to beneficial symbionts and from systems ranging from the human microbiome to microbes on the International Space Station. Most of his work involves the use of high-throughput DNA sequencing methods to characterize microbes and the use and development of computational methods to analyze this type of data.

Prior to moving to UC Davis Dr. Eisen was on the faculty of The Institute for Genomic Research (TIGR) and held an Adjunct appointment at Johns Hopkins University. He earned his PhD in Biological Sciences from Stanford University in 1998, and his AB in Biology from Harvard College in 1990. Dr. Eisen was elected as a fellow of the American Academy of Microbiology in 2012 and the American Association for the Advancement of Science in 2020.

In addition to his research Dr. Eisen is heavily involved in science communication and open science activities and is an active & award winning blogger (e.g. <http://phylogenomics.blogspot.com> and <http://microbe.net>) and microblogger (e.g., Twitter @phylogenomics). He has also been recognized for his work on Diversity in STEM fields and was chosen by Time Magazine in 2020 as one of "16 People and Groups Are Fighting for a More Equal America".

Abstract:

The focus of my research group has been on "phylogenomic" studies of the diversity and diversification of microbes. Our phylogenomic approach involves the integration of genome analysis and evolutionary reconstructions to study both the diversity of microbes (i.e., patterns of variation) and the diversification of microbes (i.e., the mechanisms by which diversity is generated). I will discuss how a phylogenomic approach can be useful in particular in analyzing sequence data from single isolated microbes as well as from communities of microbes with a focus in particular on microbes that live in association with plant and animal hosts. I will also discuss how phylogenomic approaches can guide the generation of resources for the larger microbiology community.

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