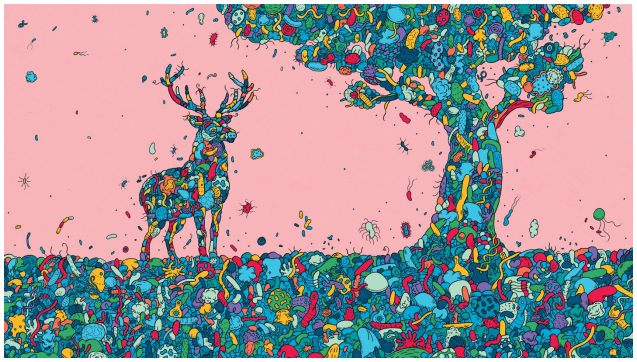
Topics in Microbiome Science (Micro6155)



Spr ’23
Fridays 9:30am-12:15pm

Instructors:
Profs. Virginia Rich
(Co-Director of EMERGE Biology Integration Institute)
and Matthew Sullivan
(Founding Director of OSU’s Center of Microbiome Science)

This graduate, literature-based course will cover ecology and evolution of microbes* - essential concepts, methods, and ongoing ‘unknowns’ in the field. (*our “microbial” focus is prokaryotes + viruses with eukaryotes only briefly touched upon).

We will cover the following overarching scientific themes:

Microbial ecology: What are patterns and drivers of microbial communities? How do we grapple with scale, statistical power, time series analyses, and multi-disciplinary data integration? What defines human, oceans, soil, engineered microbiomes?

Microbial evolution: How is selection examined in microbes, and what is known about microbial evolutionary rates and processes? How are lineages traced, and their relationships examined?

Microbial evolution in an ecological context: How can the above concepts be applied in unified systems frameworks, such as for understanding symbioses, co-evolution of viruses & microbes, microbial metabolic hand-offs & their evolution, or disease?