

## Training Opportunities in the Diet-Microbiome Interactions Laboratory

The Diet-Microbiome Laboratory is led by Dr. Steve Lindemann and investigates the genetic and ecological mechanisms that govern how gut microbial communities compete and cooperate for complex carbohydrate structures and their outcomes on human health. We are an interdisciplinary lab integrating anaerobic microbial physiology, host-pathogen-commensal interactions, bacterial genetics, innate immunity, computational, systems, and chemical biology, and mathematical modeling. We are presently looking for scientists from diverse disciplinary and personal backgrounds for the following positions:

**Graduate Research Assistant in Bacterial Genetics and Genomics:** This Ph.D. student will work as part of a collaborative team to understand the ecological principles governing consumption of oligosaccharides by communities. Specifically, this student will seek to identify how differential gene content and regulation among members influence the outcomes of competition for oligosaccharides in communities, and, in turn, host physiology.

**Graduate Research Assistant in Microbial Community Modeling:** This Ph.D. student will work as part of a collaborative team to understand the ecological principles governing consumption of oligosaccharides by communities. Specifically, this student will construct dynamic compositional and metabolic models to simulate and predict the outcomes of interactions among members of oligosaccharide-fermenting consortia.

**Graduate Research Assistant in Microbial Ecology (2):** Two positions are open for Ph.D. students interested in understanding how the chemical and physical structure of cereal bran fibers influence the outcome of competition among gut microbiota. Further, these students will explore the effect of fine variation in these chemical structures in controlling the composition and function of the gut microbiome *in vivo*, and its influence on host physiology.

**Graduate Research Assistant in Carbohydrate-Microbiome-Host Interactions:** This M.S./Ph.D. student will investigate the impact of fine differences in resistant carbohydrate structure on the gut microbiome *in vivo* (mouse model), and identify the impacts of fine structure on host metabolic and immune state.

**Post-doctoral Fellow in Computational and Systems Biology:** This fellow will lead multiple laboratory projects in metagenomics/genome reconstruction, multi-omic functional analyses, and metabolic modeling relating to correspondence between microbial gene content and regulation and competitive advantage on diverse carbohydrate substrates. This post-doc will also mentor graduate students and develop independent research trajectories within the laboratory to launch an independent research career.

**Post-doctoral Fellow in Microscale Host-Microbiome Models:** This fellow will lead efforts to develop high-throughput *in vitro* models to identify host-commensal-pathogen interactions and employ them to evaluate the role of fine carbohydrate structure on microbiome-mediated host metabolism and immune response. This post-doc will mentor graduate students and develop independent research trajectories within the laboratory to launch an independent research career.

**Contact: Dr. Steve Lindemann – (765)494-9207 – [lindemann@purdue.edu](mailto:lindemann@purdue.edu)**

*Purdue University is an EOE/AA employer. All individuals, including minorities, women, individuals with disabilities, and veterans are encouraged to apply.*

