



The UNIVERSITY of OKLAHOMA

PhD Opportunities in Host–Microbiome Interactions

Caesar Lab | University of Oklahoma, School of Biological Sciences | Norman, OK

The Caesar Lab investigates how host-associated microbiomes assemble, function, and evolve. Using eusocial bees as a model system, we develop an eco-evolutionary framework to understand the processes shaping host-microbe interactions. We are particularly interested in how host trait evolution, microbial interactions, and host association shape microbiome dynamics and the evolution of microbial symbionts. To investigate these processes, we combine fieldwork, multi-omics, bioinformatics, and microbial assays *in vitro* and *in vivo*.

We are particularly interested in recruiting students excited about:

Computational and quantitative approaches:

- Microbiome data analysis
- Bioinformatics and comparative genomics
- Statistics and ecological modeling
- Phylogenomics
- Programming (R, Bash, Python)

Experimental approaches:

- Microbiology and microbial ecology
- Molecular biology
- Culturing and characterization of microbial isolates
- Experimental design and host-microbe-microbe interaction assays

Prior experience is not required; curiosity, quantitative thinking, and enthusiasm for learning are highly valued!

Lab highlights

- Access to OU's OSCER high-performance computing resources
- International fieldwork opportunities
- Microbial culture collection from social bees

Interested?

Email lcaesar@iu.edu with a brief description of your interests, CV, and references.

Application deadline: December 1, 2026

More info: <https://www.ou.edu/cas/biological-sciences> or liliancaesar.com