

*Teaching philosophy.* I am deeply committed to effective teaching and mentorship. I have been very fortunate to have had many positive and influential mentors during my education, and this has motivated and reinforced my teaching philosophy. My objective when teaching and mentoring is to create a learning environment that simultaneously develops critical thinking skills by emphasizing the rich conceptual issues that define microbiology and encourages an appreciation of how microbiology affects our lives. I believe in teaching science as a method of understanding the world and promoting awareness of constantly changing interpretations and models based on ongoing observation. In this manner, I facilitate students' abilities to obtain and synthesize information to cultivate their curiosities and interests – skills that will serve them regardless of their eventual career paths. Similarly, I think it is universally important for students to be able to clearly and effectively communicate their ideas and beliefs.

*Teaching experience.* I have had the opportunity to teach courses and mentor students at both the undergraduate and graduate levels. I have previously managed and taught laboratory classes, including general microbiology (undergraduate) and environmental chemistry (graduate). Additionally, I have developed and taught classes on bioinformatics analysis of next generation sequencing analysis both locally and internationally. These classes build on theoretical concepts and convey practical skills in microbiology, microbial ecology, evolution, and computer programming. Additionally, while at Michigan State I created and led a graduate seminar on metagenomic research designed to introduce students (and faculty) to a wider range of topics than could be covered in a more technical course. Over the course of two years, the seminar exposed participants to the new and evolving field of metagenomics and also served as a forum for participants to present and discuss their ongoing research. I have also led numerous Software Carpentry bootcamp courses that revolve around teaching basic software skills (e.g., basic programming, testing, automation, and version control) to researchers in science, engineering, and medicine. Computational skills are emerging as a requirement for success in the scientific research community, and through my involvement with Software Carpentry, I have facilitated the teaching of these skills in both formal courses and volunteer workshops over the past several years.

*Courses of interest.* I have a broad education and over five years of teaching experience in a variety of areas which have prepared me to teach general courses such as microbiology and ecology. Additionally, my ongoing research makes me uniquely qualified to teach more specialized courses such as experimental design, genetics, quantitative biology, bioinformatics, or introductory programming for scientists. I would also welcome the opportunity to leverage my experience and interests to develop and teach courses or seminars on next generation sequencing and modern microbiology.

*Mentorship experience.* I have been the formal advisor to four undergraduate students who I encouraged to go beyond implementing existing protocols and actually lead their own projects. As a result, two of these students worked on their project for more than two years and were ultimately included as authors on the resulting manuscripts submitted for publication. I am also serving as the designated mentor for a PhD student whose project required both microbiology and bioinformatic expertise. In addition, I provide ongoing mentoring and research advice to numerous PhD students currently working in a variety of labs at Michigan State and beyond. My major objective when mentoring students is to create an environment that balances support with independence. Specifically, I encourage my students to think broadly and explore by trying out their preliminary ideas while also utilizing the knowledge and support of experts available to them to foster meaningful progress towards the accomplishment of their research goals.