

Erin E. Sparks - Teaching Statement

Philosophy

The education and training of students in both the lab and classroom has been an integral part of my scientific career. My central teaching objective is to make science accessible to all. I believe that everyone should have access to high-quality education and training regardless of socioeconomic status, race, ethnicity, ability/disability, gender or sexual orientation. My commitment to this philosophy starts with establishing a safe and inclusive space for learning.

Within the classroom I aim to challenge and engage students through interactive lessons. To achieve this aim, I integrate aspects of peer-learning approaches into my courses, which are based on the philosophy that student engagement is central to long-term interest and retention of material. For example, I developed a hybrid lecture and peer-learning curriculum for two modules of an upper-level complex genetics course at North Carolina Central University (NCCU, a historically black college and university). I used student feedback at the end of each class (in the form of minute quizzes) to guide the lecture topics for the following class. In addition, I implemented weekly individual and team-based quizzes where students answered the questions first individually and then as a team. Team quizzes were weighted more heavily towards their grade and promoted the discussion and defense of each answer. In my experience, this strategy promoted student engagement and the retention of course material.

Within the laboratory, I aim to include engage high school, undergraduate and graduate students in research projects. Again, I believe that engagement is the key to success. When new students start, we work together to generate a one-page summary of their proposed research project and objectives. This summary serves as their reference throughout the project and helps them understand the big picture. In my experience, when students understand the big picture and the rationale behind the project and protocols, than their likelihood of success is much greater. Beyond the lab, I participate in scientific outreach opportunities aimed at engaging rural high school students in STEM careers.

Experience and Qualifications

Although teaching commitments were not part of my graduate or postdoc training, I actively sought opportunities to develop my teaching skills. Here I highlight only a few examples of my relevant experience; for a full list, please refer to my *curriculum vitae*.

As a graduate student I was a TA for an "Introduction to Biological Sciences" laboratory. This course was adapted from a traditional introductory laboratory format to include an independent research project. The aim was to engage undergraduates in independent scientific inquiry early in their training. Subsequently, as a postdoc I had the opportunity to develop two modules for the aforementioned complex genetics course at NCCU. One module was on genotype-to-phenotype and the other on genetically modified organisms. As an instructor at NCCU, I designed course material and wrote tests to assess student comprehension.

As a graduate student and postdoc I have mentored individuals at the high school, undergraduate and graduate level. While the majority of these students have proceeded to the next phase in their career, many keep in touch after they depart the lab and continue to seek my mentorship. I believe that mentorship is an ongoing commitment to support that individual and that mentoring is one of the most rewarding aspects of working at a university.

As an Assistant Professor, I look forward to continuing to teach inside and outside the classroom, and engage in scientific outreach. I am interested in teaching courses with a focus on molecular biology, developmental biology, genetics or genomics. In addition, I would like to develop an upper-level undergraduate course on rhizobotany. Finally, I aim to develop a course on the practical application of statistics for biology, because I believe there is a disparity between statistics courses that teach theory and the application of these theories in the research setting.