Teaching Statement

My first teaching experience was as an undergraduate chemistry tutor at Goucher College. I was responsible for leading study sections for an introductory chemistry course, and I enjoyed watching my students improve. I continued teaching in graduate school at the Massachusetts Institute of Technology, where I was a teaching assistant for two semesters. First, I was the head teaching assistant for Chemistry 5.11, a general chemistry lecture course taken by several hundred students. This job provided me with a strong appreciation for the challenges in successfully organizing and teaching a large lecture course. For my second semester teaching experience, I was the TA for an upper-level biochemistry lab course. My co-TA and I were responsible for all aspects of the course, from preparing the reagents to lecturing and grading. Although this course was quite time consuming, I found the opportunity to educate through more personal interactions to be very satisfying.

After transferring to The Scripps Research Institute and switching to a plant biology lab, I participated in a high school outreach program to bring students into the laboratory. As part of this program, I mentored three students, teaching them basic lab skills and then overseeing them as they assisted me with my research. All three were subsequently hired as part-time technicians in the lab. While at Purdue, I have mentored two undergraduate students doing research projects in the Salt lab; they have both gone on to pursue Ph.D.s in the biological sciences. I have also guest lectured in the Plant Mineral Nutrition class.

My philosophy for teaching upper-level undergraduate and graduate courses is to engage the students in reading the scientific literature and help them understand the process of doing science. With my background, I am confident that I would be able to teach courses in genetics, biochemistry, and molecular biology. For a genetics class, I would use *Arabidopsis thaliana* and Fast Plants™ as models to teach the basic concepts. For example, the Salk SIGnAL Arabidopsis database, which contains genotyping data from the SIGnAL lab's attempts to find homozygous T-DNA insertion lines for thousands of genes, would be a great resource for homework problems on segregation distortion.

If possible, I would like to design and teach a course that highlights recent advances in biotechnology, how they change our approaches to problems, and how to design quality experiments using these advances, with a heavy emphasis on actually performing analysis so that students would become comfortable with the available software tools. I would stress the principles behind those tools as well as problem-solving skills so that the students would be prepared as the tools develop further. Students would learn the basics for handling, combining, and manipulating large datasets; how to evaluate experimental quality; how to identify significant differences between samples; and where, how, and when to ask for assistance from online communities. By working on actual data in groups and in class settings, students would be exposed to a wide variety of formatting, coding, and experimental challenges to develop their problem-solving abilities.