

Teaching Statement

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Throughout my career I have been involved in teaching on several levels and in various environments. I have a passion for science and enjoy sharing this excitement with others. As a Visiting Assistant Professor in the Biology Department at Carleton College, I am experiencing the rigors and rewards of teaching at a liberal arts undergraduate institution. While a graduate student, I was a teaching assistant for both introductory biology and an upper-level biochemistry laboratory course that encompassed diverse populations of students (undergraduates, graduate students, and continuing education students). I look forward to the opportunity to teach courses such as biochemistry, cell biology, molecular biology, immunology, and introductory biology.

During a graduate-level immunology class, my interest was piqued by a protein called the invariant chain whose mostly unknown function was summed up in one sentence in the textbook. Although my professor had little knowledge of the invariant chain, he supported my proposal to write the final paper for the course on this protein. His encouragement proved fruitful as I now have several research papers and a review article that revolve around this protein. This experience fostered my desire to cultivate the scientific interests of students in any area they wish to pursue. Moreover, I wish to invite them to consider a career in science through the engaging and creative exposure to many different biological concepts.

I have experienced first-hand the thrill of scientific discovery and share this wonder with my students. As science today is often a collaborative effort, the excitement that these discoveries elicit is frequently shared with colleagues. I encourage students to work together on homework and include creative collaborations in the classroom such as group oral presentations of primary literature. These activities foster the ability to work in a team-oriented environment and aid in the understanding of concepts covered in the classroom and lab. Moreover, the incorporation of primary literature exemplifies that science is dynamic and constantly evolving.

While understanding the basic concepts of science is fundamental, the ability to see how these ideas fit into the real world is key. “Would this make a good drug?” “How is this protein involved in cancer?” These questions not only require an understanding of the underlying science, but an understanding of the intertwining roles of science and society. Such questions can range from being socially momentous (“How does genetics effect my life?”) to simply engaging (“How is citric acid produced industrially so that my orange soda will taste like an orange?”) Moreover, I believe that in any curriculum, a principal goal should be the clear presentation of this relationship in written and oral form by the students. Indeed, it is critical that students graduate with the skills to communicate effectively in the increasingly competitive scientific world. In my opinion, simply understanding the science is inadequate to success.

I welcome personal one-on-one time with students (in lab, during office hours, or just when meeting on the street) and encourage them to work with me on dealing with topics such as classes missed due to illness, sports games, or child-care issues. Moreover, I take a proactive role in mentoring students who are dealing with personal issues that are affecting their learning.

For example, at Carleton College I have worked with both the Dean of Students Office and the Multicultural Affairs Office to help one of my students whose struggle with her cultural identity was hindering her academic success.

Due to the fact that students learn differently, the best teacher, in my opinion, is one who can teach in a variety of ways. As one who often uses physical and spatial concepts to understand science, I incorporate many visual aids in the classroom and laboratory to aid in explaining concepts such as enzyme/substrate interactions, molecular motors, or membrane dynamics. I also introduce and use current technology in the classroom. Course assignments often require the students to use scientific databases and software found on the world wide web. I encourage the use of programs such as PowerPoint for oral presentations. This varied method approach allows individual students to experience effective learning.

My love for teaching goes beyond the classroom and into the seminar room and poster session. Often the challenge of an entertaining and educational presentation is explaining the small details while maintaining the 'big picture'. I believe that I balance these ideas well as illustrated by my awards for the "Best Graduate Student Poster" (AAAS Meeting, 1996) and the "Keystone Award for Outstanding Scientific Contribution" (Keystone Symposium on "Exploring and Exploiting Antibody and Ig Superfamily Combining Sites," 1996). I have taken my passion for the potent communication of science further by writing news articles on cutting-edge science for Harvard's Focus magazine. I encourage students to take advantage of every opportunity to present their work to their peers or the general public.

Beyond teaching in these "classical" environments, I participated in the Science-by-Mail program run by the Boston Museum of Science. As a "pen-pal scientist" for seventh- and eighth-graders, I helped them understand concepts such as meteorology and waste management. To foster the idea that scientists are "real people", I hosted a home-schooled student in my lab for a day and judged the Boston Latin School Science fair. I believe that such community service activities are integral to the encouragement of future scientists.

A student's interest should always be buoyed by a spirited presentation of material. I am a highly organized person with a passion for science. I am secure in my effectiveness as a teacher because of my multi-disciplined knowledge, enthusiasm, and excellent communication skills. My experience in small college settings as well as in the cutting-edge environment of Harvard Medical School enables me to relate with undergraduates and excite them about the rewards of pursuing science beyond the undergraduate level.