

GK-12 Graduate Fellows Program

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Physical Chemist



Growing up in the era of “Sputnik” and the “A-bomb”, I was constantly given the message that a career in science was both exciting and patriotic. Although I did play with my Gilbert’s Chemistry Set in my younger years, it really wasn’t until high school that I found I had a real affinity for the subject. Even though I did pretty well in science in high school, I wasn’t convinced that I’d be as successful at University. I wanted a profession that

would allow me to earn a good living for my future family and myself with only an undergraduate degree, so I enrolled as a chemical engineering major. Two factors turned me into a chemist. First, I loved my general chemistry class. Second, I hated the fact that the engineering curriculum included no opportunity to take classes in disciplines other than science, mathematics, and engineering. I was particularly interested in philosophy, and I wanted to learn about psychology and literature, but I wasn’t willing to give up on a career in science, so I switched to chemistry and never looked back.

My research career has involved two decidedly different tracks. As a graduate student, I pursued a PhD in Physical Chemistry, (which is the study of how likely something is to happen.) My focus was on the study of the electrochemical behavior of (different types) of vitamin B2 (riboflavin). Flavins are fascinating compounds, which are involved in the transport of electrons in the body. They also have very interesting photochemical properties.

As a postdoctoral fellow I worked on the development of solar energy. When I became an assistant professor at UNCW I returned to the research I did as a graduate student, bioelectrochemical behavior of vitamin B2.

However, in 1990 or so, I got interested in applying the emerging technologies made available with microcomputers to chemistry instruction, and decided to shift my research efforts in that direction. Since then my work has focused on the development and assessment of technology-based instructional materials for general chemistry, including a “kitchen chemistry” laboratory-based course for science majors taught completely at a distance. I have been supported in this effort by a very talented and innovative group of faculty from chemistry, mathematics, and computer sciences. Our interdisciplinary team shares the vision that technology provides unique tools that, if combined with sound pedagogy, can significantly enhance the learning experience for the student. I have shared our work at numerous national and regional professional meetings, and at local high schools and community colleges.

