**TEACHING PHILOSOPHY**

My teaching philosophy derives from experience as a secondary and postsecondary educator in U.S. educational settings ranging from rural high schools to elite four-year universities. Although these students differed dramatically in their needs, interests, and goals, my teaching philosophy remained the same: every student is capable of becoming an independent, resourceful, critical thinker if provided with the right foundations and challenges, and it is my job to provide those supports. This manifests in two broad avenues. First, assessment and revision are bedrocks of my lessons. If students leave my classroom confused, I have failed that day. Second, I am pragmatic and flexible in my pedagogical approaches. By being prepared to teach material in a variety of ways that challenge those with mastery and reset the board for those struggling, I ensure no matter who walks into my classroom, they’re walking back out with a better grasp of biological concepts, data analysis and evaluation, and critical thinking.

**TEACHING EXPERIENCE AND QUALIFICATIONS**

I have over nine years’ experience teaching at the secondary and postsecondary level. This includes four years teaching at a rural central Kentucky high school where a substantial portion of the student body lived below the poverty line. In this environment, I taught chemistry, biology, AP Environmental Science, and AP Physics, and was heavily involved in development and implementation of curriculum that aligned to state and national standards. It was also in this environment that I first learned and applied research-based pedagogical approaches such as collaborative and experiential learning, and learned the importance of frequent formative assessment and adjustment.

When I began a Ph.D. in Biology in 2011, I was nervous about teaching at the University of Virginia. These students were a very different demographic than my country kids, and I wasn’t sure if the pedagogical approaches I used at the secondary level would translate to driven, high-achieving undergraduates. But I quickly learned that while UVA was home to some of the best students anywhere, it remained a student body of diverse needs and experience levels. Continuing assessment and varied teaching approaches were still of paramount importance.

My first chance to implement my teaching philosophy was as a TA for *Genetics and Molecular Biology*. This course used a collaborative model for discussion sections, in which groups were assigned open-ended questions that required application and synthesis of content. For each session, I prepared material to both support and challenge students as needed. I began with a mini-lecture to reinforce foundational content. Then, as students worked, I frequently assessed their understanding, both individually and collectively, and corrected misapprehensions as they arose. I challenged students who had mastered concepts with extension questions, and supported those who were struggling with review material or leading questions. My policy was to never tell a student an answer I could instead guide them to. This way, students gained confidence in their own abilities as independent critical thinkers. Though these discussions were challenging, students routinely ranked them as one of the most helpful components of the class. As a TA for other large lecture courses without discussions (*Introduction to Biology* and *Evolution and Ecology*), my goal of challenging and supporting students remained the same. I prepared for each review session and office hour by distilling lecture content into thematic units, then guided students as a group through example problems and discussion. This way, I helped students identify and correct their own misconceptions.

My teaching philosophy in the lab is the same as in the classroom: assess each student’s knowledge and skills, provide foundational support, and assess and adjust as needed. I have had eleven undergraduate research assistants, ranging from 1st year community college students fresh out of high school to university seniors with skills that outpace my own. In each case, I have begun by gauging their mastery of relevant biological concepts and core skills, then developed a training course designed to help each student become independent. For students doing wet lab projects, that has meant mini-courses on mating systems, life history in genus *Campanula,* and the chemistry behind CTAB-based DNA extractions. Students working on bioinformatics projects have either come in well-versed in python and conversant with machine learning algorithms, or have never touched the command line before. For experienced students, I focus on getting them as comfortable with the biology of gene and genome duplications as they are with coding. For inexperienced students, I begin with an intensive coding boot camp beginning with basic command line navigation and simple Bash scripting. By meeting each student where they are and honestly assessing their knowledge, I’ve been able to move them all toward being independent, competent researchers. Thus far, these collaborations with students have resulted in talks at university symposia, three decisions to attend graduate school, a poster at a national meeting, and two published manuscripts.

I have been recognized for my teaching success. I was the first Biology graduate student chosen to independently teach UVA’s summer session of *Introduction to Biology II*, a fast-paced lecture/lab course. I used a combination of lecture, primary literature excerpts, and discussion to provide a foundation, then reinforced the material and challenged students with applied laboratory exercises. My experience and dedication to instruction at UVA culminated when I was chosen for the Dr. Frank Finger All-University Graduate Fellowship for Teaching, a highly-competitive university-wide award that recognizes, “stimulating and organized classroom teaching”. At the University of Arizona, I was consulted by fellow postdocs as well as UA and PCC faculty for input and advice on lesson plans and classroom practices. Most recently as CPING’s program manager, I have helped develop two workshops held at the Botany 2020 and 2021 meetings and overseen curriculum development for courses being held as part of CPING 2021 Research Experiences for Undergraduates (REU) program. These most recent experiences have been helpful in updating my teaching techniques for a remote environment.

My university teaching experience includes Molecular Biology and Genetics, Ecology and Evolution, Introduction to Cell and Molecular Biology and Introduction to Organismal Biology. I would also be comfortable teaching Botany, Plant Diversity, Plant Ecology, Genomics, or other courses as needed. With my broad experience teaching in a variety of settings, I look forward to contributing to the educational mission of George Mason University.