

In college I spent hours in a small conference room with a handwritten note taped to the door that read, "Math Help!" All through my own schooling I was informally aware of pedagogical practices. I could easily drop instructors into two categories: those from whom I learned and those from whom I did not learn. The "Math Help!" session was not my first experience in assisting the learning of others, however, this was where I began to understand the complexity of the relationships between teaching and learning. Students of all levels and backgrounds came into my conference room asking for help in potentially any of the courses we offered in the department. Without delay I realized that my teaching style did not address many of the students' needs. The comfortable way for me to address a problem or concept was always the way that I had felt most comfortable learning the material myself. I needed to alter my approach to cater to my peer's learning styles. Instead of relying on equations and definitions alone, I began to utilize diagrams from the text and attempts of my own conceptual drawings. I also tried to come up with real world examples to model the concept in question. I continue working toward finding explanations of difficult topics that speak to every student.

Although I never had the opportunity to have sole responsibility for a course, I do have a variety of alternative experiences that exhibit my dedication to pedagogy. I began a supervisory position in Academic Development at Carnegie Mellon at the start of my fourth year as a graduate student. A fellow Mathematics PhD student recommended that I take over his position once he completed his degree. He was aware of my interest in pedagogy, and I was granted the position after quickly convincing the Academic Development staff of my commitment to the students. My role includes overseeing undergraduate students who lead instructional sessions for two separate programs, Supplemental Instruction (SI) and Excel. The SI and Excel programs hold auxiliary sessions to complement the course material for notoriously difficult undergraduate courses. The main difference in these programs is found in the class size. SI is open to every student registered for the course and there is no attendance requirement. However, Excel is limited to six students with mandatory attendance. This creates a very different learning situation for the students. I find that the variance in the structure of these sessions is the key to reaching the majority of the students' needs.

My experience with Academic Development has given me the opportunity to witness many combinations of teaching and learning styles. I have used these encounters to improve my own teaching. I have been a Teaching Assistant for six semesters and two summer terms. The majority of the courses are Calculus courses offered at Carnegie Mellon. Please refer to my curriculum vitae for the exact list. My last semester of teaching exemplifies the variance I needed to possess in the classroom. I was a Teaching Assistant for one section of a beginning calculus class geared towards students with majors in the humanities. The class size was small and I directed the focus of the material toward student suggested goals. As the course went on the majority of the students were falling behind the lecture material. My approach moved from problem-centered to concept-centered. Giving the students

alternative explanations of the material helped the students grasp the basic foundations. Only then could we move on to applying their knowledge to problems. In contrast, I was concurrently a Teaching Assistant for one section of a course aimed at series and sequences for first year students with advanced placement credit. For the most part, these students were incredibly on top of the course material. The struggle in this course was to get through the necessary material while making time for the quiz that I was instructed to give at the end of every recitation. I followed a much more regimented schedule during the recitations so I could have time to address the majority of student questions as well as work through the examples that illustrated the session's objectives.

I am open to teaching at all levels and am willing to tackle most topics, especially in the applied areas. Once I settle in, I would like to work on developing a Mathematical Biology course. Even though I have limited experience with the structure of a typical mathematical biology course, I am confident in my ability to work with the Mathematics and Biology departments to create an engaging course. Giving undergraduates an opportunity to apply their mathematical knowledge to another discipline is exemplary of a liberal arts degree. Not only does the bridge between sciences broaden student's scope of mathematical applications, but it also has the chance to spur their interest in research. I would also love to construct a mathematical software course. Even though my experience is as a teaching assistant for these courses, I had several discussions with the professor of this course on the content and flow of the curriculum. I find that an introduction to software tools that are available is especially important for undergraduate students intending to attend a graduate program. I am excited to work with others to develop curriculum for new courses and to revamp classic courses not only within the department, but across departments as well.

My main professional objectives is to get students excited about mathematics. Part of this is done in the classroom, but much of it is done after class. Clubs, seminars, and professional societies, can engage students in a mathematical community. However, I believe that student research is the biggest influence on a student's interest in mathematics. With projects that showcase the practical and interesting applications of mathematics on issues that students care about we can help them to see the beauty of mathematics.

Since my eyes were opened to the intricacies of teaching and learning, my interest in pedagogy has continually grown. I am aware of the persistent dedication needed to be successful in the classroom. I have attended many teaching seminars offered by the Eberly Center for Teaching at Carnegie Mellon, including a workshop series geared directly to teaching mathematics. I am interested in exploring innovative teaching techniques from utilizing technology to emphasizing group work. In this next step in my mathematical career I look forward to expanding my pedagogical knowledge and the opportunities to apply it to all facets of teaching.