

UTA Reflection

Matt Mitchell

The Undergraduate Teaching Assistant program offered by the Department of Mathematics has been a wonderful experience for me in mathematics teaching this past semester. I first heard of the opportunity from the professor whose Linear Algebra class I had taken the previous year. Because of my success in the course, she wanted me to be a TA for her classes in the spring. At the time, I had been working as a preceptor for an introductory physics class which amounted to a commitment of about three hours a week. Assuming this program would be as effortless, I decided to do it. Although I couldn't have been more wrong, I feel the extra stress has been worth it to learn some new skills in effective mathematics communication.

My experience had somewhat of a rough start: the first homework set I graded, only two problems on about thirty student's homeworks, took me about four hours to complete. This was because I approached the task with nearly no preparation. As I read through the problems, I was confronted with a huge diversity of solution methods which made me anxious: could award points fairly across all of the homeworks if everyone is looking at the problem a different way? Pretty soon after this, one of the lessons in the UTA class focused on writing grading rubrics for problems. We discussed how to go about creating a rubric and even addressed the issue of revising the rubric when presented with solutions that deviate from your expectations. Writing rubrics for the problems I was grading drastically reduced the time it took me to grade as well and assured me that I was assigning points fairly to everyone.

During my tenure as a UTA, I proctored several problem solving sessions where students would work on a set of prepared problems and I would facilitate the brainstorming of solutions as well as record them on the board. At my first problem solving session, I wasn't sure how much time I should give the students to think to themselves about a problem before bringing it to a class discussion. Also, it proved very difficult to ensure that everyone participated in the discussion and that it wasn't dominated by the same students every time. But with the more sessions I proctored, the better I became at judging when student's individual thinking stagnated, either because they finished the problem or got stuck somewhere, so I could open it up to a class discussion at the most opportune time. I also became more confident in my ability to control the discussion and focus on the students who needed more encouragement to share their ideas.

Along with grading and proctoring discussions, I also had the opportunity to develop my mathematical communication skills. I believe it was Richard Feynman who said something along the lines of: If you can't explain something in simple terms, you don't really understand it. I think this is especially relevant to teaching mathematics; the best way to ensure people understand your ideas is to frame them in the most clear and concise manner. Holding office hours every week gave me regular practice explaining the more difficult concepts of linear algebra in the best ways I could. From this, I've developed better strategies for demonstrating my mathematical ideas which I now employ in other areas of my mathematics education as well.

The most beneficial aspect of my Undergraduate Teaching Assistant experience is the knowledge I've gained that will surely go to good use in my graduate school career. I would

suggest becoming a UTA to anyone who is interested in teaching high-level mathematics or attending graduate school in mathematics or a related field and wants to better prepare themselves for the experience. The knowledge and skills you will learn will be an invaluable asset to you in the future as I know they will be for me.