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UTA Program Reflection Fall 2022

This was my second semester as a TA with the UTA Program. Once again, I worked with Dr. Aubrey, though this time I worked on MATH 425A (Real Analysis of One Variable), which is a significantly more advanced course than the course I helped with last semester. Once again, this was a very proof-heavy course, so I spent a large portion of my working time in office hours or review sessions, as this seemed to be the best help to the students in the course. In addition, I also spent a good amount of time making solution sets to homework assignments and grading homework rewrites.

Working on a harder course, I was challenged in a variety of ways. First, when writing solutions, I had to consider the problems more thoroughly than last semester. However, what was more significant was when I struggled to see the solutions to problems in office hours. Due to the time constraints of working in office hours, a delay can significantly affect the amount of help you can give to a student. This clarified the difference between the level of knowledge of a student and a teacher in my mind. When I took this course, I did well and was able to grasp the material rather quickly. However, from an educational role, I needed to not just understand the material but be so strong in that understanding that I could assist others without taking much time to think. This is an entirely new level of understanding, and while I think I was approaching that point at the end of the semester, I was not quite as strong in the material as I would have liked in the beginning of the semester.

Working as a TA for this course also shifted my perspective on the problem of helping students with conceptual understanding instead of just helping them solve problems. One thing I changed about my approach to this semester was trying to shift my focus away from the problem

solving mentality and instead helping students to get to the root of the material. Part of my approach involved dedicating one of my two office hour periods towards just conceptual review while the other could be used for either conceptual review or specific homework help. This was a good idea in theory but it requires that students attend office hours regularly for any appreciable difference to be observed. In reality, many office hours were unattended, and I imagine that the conceptual limitation could have been a negative force on office hour attendance.

I still think the pursuit of conceptual understanding should be more highly prioritized in math courses, but with the current academic structure, I don't think students will ever feel motivated to go to office hours purely for conceptual understanding. This is understandable given the large amount of work students are required to do. I think that lightening the load of homeworks and instead having occasional timed quizzes (or similar assessments) that force students to work without direct assistance would have a positive impact. These quizzes could be take-home to preserve class time, but keeping them timed is important because it minimizes the amount of time a student spends on them. This allows students to dedicate more time towards studying the material for the quiz, improving conceptual understanding instead of just working through problems.

Ultimately, my experience as a TA has been beneficial to my academic career, and I would recommend it to others, at least for one semester. It is a useful perspective that has helped me to understand education as a whole much better, as well as deepened my math skills in a variety of ways. I also believe that I am a much better communicator because I have gotten so much practice explaining and recontextualizing a wide range of mathematical concepts.