

Teaching Philosophy

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My path to teaching mathematics started when I pursued my undergraduate in mathematics teaching in the "Urban Teaching Program" at Metropolitan State University, and subsequently earned my state teaching license. The program had a very strong emphasis on developing teaching strategies to better serve marginalized communities, learning their histories in the United States, and serving as a student teacher in a school whose students were largely from these communities. Along the way, I also volunteered in many venues; tutoring students with mental illness toward their GED, tutoring in afterschool programs and in underserved high schools in Minneapolis.

But my interest in more advanced mathematics led me to apply to the graduate program at the University of Minnesota, where I became a TA for Calculus I/II and Linear Algebra with Differential Equations. My duties included two discussion sections (30 students each) that met twice a week where I was responsible for preparing students for exams. There were always quizzes (which I generated) and homework, but depending upon the lecturer, the homework was sometimes on the honor system. It was my job to grade any quizzes or homework. The teaching assistants all took their share of grading with respect to common midterms and the final.

During this time, I experimented with monitoring comprehension using an app called [PollEverywhere](#) that gave real-time feedback while teaching. Ultimately, I found the app not as useful as I had hoped (even anonymously, students didn't divulge when they lacked understanding). I also experimented with increasing student engagement through an online collaborative learning tool: Perusall.com. This website hosts teaching materials and allows students to engage with each other regarding the material. It also maintains an "engagement score," which gives me feedback. This became very useful during the pandemic in keeping students engaged while distance learning. I also make class notes for each lesson available to my students via a PDF. I have received six University of Minnesota, Center for Educational Innovation "Thank a Teacher" Awards. I also average 5.5 out of 6 in the student rating of my teaching performance.

Through my teaching experiences, I've grown to believe that effective instruction requires us to ensure mathematical content is accessible, relevant, and interesting to students. The easy thing to do is to teach in a way that is accessible only to students with certain backgrounds and motivations. Unfortunately, this approach to teaching perpetuates historical inequities in academia and society. A more challenging teaching approach is to work to ensure students with weak mathematical backgrounds, or disinterest in the subject can access mathematical ideas and find motivation to study them.

Within our presentation and materials, we should generate on-ramps for students who might be struggling due to mathematical deficits. Examples include thinking about which prior math steps are assumed in your presentation and briefly reminding students along the way; or providing class notes which include more step-by-step explanations for those struggling with prior math. We can also apply mathematics to things students might be interested in (sports, biology, video games, etc.). I've also been surprised at how frequently math books or lessons fail to include simple graphs or images that would provide a student with an intuitive understanding. These good practices are now ironed into my teaching style.

My experiences in teaching have instilled in me a dedication to reducing the degree to which my students' success is determined by their socioeconomic status, presenting mathematics in such a way that students feel confident in their ability to master it (if they put in the time), and making mathematics more engaging and relevant to my students' lives.