

## Teaching Statement

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The most challenging issue when teaching mathematics is encouraging the students who feel intimidated by math while at the same time challenging those who excel at it. I believe the best way to accomplish both of these objectives is to be a very hands-on professor who is easily accessible to the students and who can come up with inventive and applicable examples to keep the students' interest.

An overwhelming amount of students feel that they cannot succeed in math. It has been my experience that these students have not felt motivated in previous classes because they do not see the relevant applications of the techniques they are learning. When teaching, it is easy to ignore the question of "Why do I need to know this?", but I feel an instructor must stimulate students by providing specific applications relevant to their interests. Once a student realizes that the mathematics they are learning can be beneficial in life, then they can be more inspired to learn.

With regards to actual classroom instruction, I feel that students are better able to grasp the mathematical concepts by doing rather than watching. I feel it is important to first present basic concepts to the students then walk them through example problems. Learning why we solve the problems is as important to me as how to solve the problems. Actual experience in solving the problems allows students to better understand the reasoning behind why the techniques work as well as encouraging them to try new types of problems without having an example shown to them first. While working through examples is a great way to learn, I have observed that students actually understand the concepts better when they teach them to other students. When faced with the fortunate situation of having a small class size, or having students in office hours, I encourage students to explain the material to each other. As I have learned through my own teaching experience, the concepts really solidify in your mind once you begin to explain them to someone else.

One of the most important qualities a teacher can have is approachability. This not only encourages students to come to office hours but also makes them feel more comfortable participating in classroom discussion. I feel it is extremely important to make students feel at ease enough to ask questions in front of their peers in lecture and to take advantage of office hours. The best way to make students relax and open up is for them to see that I enjoy helping them, both in class or in the office. By allowing the students to feel that their learning is important to me, I feel that they are more likely to give their best effort in class and realize that their learning is paramount to my being an effective teacher.

I have applied this philosophy during my time spent as a teaching assistant for varying levels of engineering calculus and graduate numerical analysis, as well as while instructing an introductory level calculus class. Throughout my years of teaching I have modified my teaching style according to student feedback. By listening to the suggestions and complaints from my previous students, I am able to better suit the needs of my next students. I believe it is this ability to learn from previous experiences that lead to my being awarded the Outstanding Teaching Assistant Award in 2006. While my teaching assistant experiences were with mathematicians and engineers who understand and enjoy mathematics, my assignment as instructor of record for an introductory calculus class was completely different since most of the students were only taking the class to fulfill their mathematics requirement for graduation. To modify the class for these students, I concentrated on coming up with examples and problems that were more applicable to their areas of study, such as problems dealing with dosage of prescriptions and the rate at which they are absorbed in the body. By tailoring the curriculum to suit the needs of the students taking the class, I am of the opinion, and their evaluations agreed, that this better motivated the students to learn.

I think that perhaps the most important thing about teaching is to pay attention to the needs of your students and to be flexible enough to adapt to their needs and concerns. I feel that being accessible and genuinely concerned about their needs and fears is an excellent way to motivate students to learn. Overall, I strive to change the students' perception of mathematics and show them the many applications that mathematics can address.