TEACHING STATEMENT

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A good teacher must, of course, understand the subject in depth, but also must be able to explain the concepts in a way that builds enthusiasm for the subject. As a graduate student instructor at Texas Tech University (2011-2015), I have been solely responsible for teaching eight different undergraduate courses which are listed in my CV. I have also taught an introductory course in complex analysis to high school students in a week long Applied Mathematics Program (AMP) camp.

Teaching mathematics is a constant learning process for me in improving my techniques and teaching skills. I prepare lecture notes before class to maintain an appropriate pace while teaching. However, when introducing a new topic and explaining techniques for solving problems, I begin the lecture with an example to uncover the motivation behind the topic and the techniques. It is amazing to see the students reason their way by trial and error to discover a process. I also found that it is beneficial to occasionally write something incorrectly on the board to see if the students can figure out the mistake. Also, being repetitive sometimes while conveying ideas or lecturing in the class boosts confidence in the students and provides reassurance of their understanding. I also believe that class participation is extremely important. As a result, I provide opportunities to stimulate questions in the students to motivate question asking which is then contagious. Questions enliven students and help to foster an interactive environment inside the classroom.

Assigning homework is challenging as it varies with the type of course. For instance, in Calculus I, I assign many homework problems. To master the techniques of differentiation and integration, one needs to see many kinds operations and functions. However, for courses like Calculus III, I give problems that require thinking and intuition and hence fewer problems are assigned. I encourage students to collaborate with other students on assignments and I encourage them to seek for help if unsuccessful. I provide study handouts containing problems, formula sheets and solutions of previous exams that summarize the material and serve as a practice resource for the final exam. I use web-based homework such as WebWork or WebAssign or Blackboard for some classes which motivates students to persevere and helps them to understand the material. The majority of the calculus students are either engineering or science majors. Therefore, I also maintain a balanced teaching approach avoiding too much theory and too many examples. Techniques of proof are abstract and hard to understand for some students while too many examples and applications oversimplify the material.

Further, along with the traditional approach of using a blackboard while teaching, I also use technology like Mathematica, Maple and Matlab to draw graphs to provide insight to the students. For instance, I explain how curves can be sketched by parametrizing it differently through showing animated movies. In business courses, it is necessary to demonstrate mathematical techniques by presenting a judicious choice of examples and applications from the real world, which inspires the mathematical content. For instance, to explain concepts like concavity and derivative tests, I ask them to suppose investing in a particular stock of a company for which they know how the price of the stock behaved for the last few years. Then, I ask them to determine how fast or slow the price is it increasing or decreasing. How much could be made if they invest now?

Since my early school days, I have noticed my favorite teachers' way of teaching involved energizing the classroom environment with anecdotes and jokes, and engrossing the students with the material. Now, since entering graduate school and observing more closely the techniques of my professors, I have applied them as much as possible in my own teaching. As a result, I have seen a consistent improvement in my teaching evaluations over the past four years. In the

Mathematics courses are sometimes criticized as being uninteresting or irrelevant and that teaching mathematics is "robotic". My primary goal is to inspire students as much as possible to learn, appreciate and enjoy mathematics. In conclusion, I wish to show students that mathematics is a bridge which unifies various interdisciplinary concepts and mathematics helps them to explore new ideas.

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