

## TEACHING STATEMENT

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Learning involves much more than simply memorizing facts. It is a process of increasing understanding and knowledge, and educators are the guides through that process. I feel that learning is centered around certain basic concepts. Independent thought and critical thinking are essential to gaining knowledge. By being able to reformulate material in their own words, students can demonstrate an understanding of ideas that goes more than skin deep. To this end, students should be encouraged to ask questions about why things are the way they are. Another important aspect of learning is cooperation. While students need to know how to solve problems on their own, collaboration on projects can help them see the value of different approaches. Finally, it is important for students to be able to apply their knowledge. Of course, this is the real test of learning.

Teachers have a lot of responsibility. As mentioned above, I believe that teachers are guides. As a guide, it is important to know a student's background. I believe that everyone can learn math. However, I also believe that everyone learns differently, and so it is important to know where your students are mathematically and where they want to go. I also believe that it is also important for teachers to put what is being said into a larger context. For instance, I like to work in anecdotes about the history of mathematics while I am teaching. In calculus, when covering arc length, I'll say something about how Archimedes used similar techniques over two thousand years ago to estimate the circumference of a circle and the value of  $\pi$ . If I am discussing finding roots of polynomials, I'll say something about Galois and the problem of solving the quintic. I find that my students get more excited about learning when mathematics becomes a living thing rather than just equations. It also helps me convey my enthusiasm for mathematics. Many of my students have said that they hated math when they started, but after my class they realized it could actually be fun (or at least worthwhile). I love to see my calculus students realize that mathematics is a beautiful vibrant subject rather than the horrible chore they anticipated.

Teachers should also be accessible to students. Some of the best teaching I have done has come in office hours where I can really focus on a particular student rather than teaching to a large class, and I really enjoy the personal interaction that office hours give. I let my students know that I am willing to meet with them to help work out any problem they may have. However, students need to understand that they have responsibilities in the class. I expect my student to put time and energy into the class, and I tell them that up front. This is where testing comes in.

In order to evaluate and motivate students, I give quizzes on basic materials, and I also try to assign group work if I can. I encourage students to work together on homework and help build their intuitions by exchanging ideas. Especially in higher level math courses, I tell my students that at its best, mathematics is an actively social endeavor, rather than a collection of disconnected people each working on their own.

I always try to have interesting homework and exam problems that require creative thought rather than brute force calculation. Of course, it is also important to test simple problem solving techniques in mathematics, so often I include those type of questions in homework. This is not all I use to judge my students, though. I talk to them during my office hours, and I have found some students who grasp the material and for one reason or another do not do well on an exam. So I try to judge each student individually, but for better or worse, test scores, quizzes and homework are the main component of the grade.

Overall, I find that every time a student asks me a question, it renews my enthusiasm for teaching. I learn from my students every time I teach, and I enjoy leading students down the road of learning and watching them continue on long after they leave my class. I have developed some great relationships with students that I maintain today. Just like every other teacher, my philosophies of teaching are always evolving as I learn more and gain more experience, and I look forward to teaching for many years to come.