TEACHING STATEMENT

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Over the past ten years, I have had the distinct privilege of teaching students spanning in age from second grade to college graduates. These diverse experiences have provided me with the opportunity to see how our mathematical minds develop and to better appreciate discovery as a primary method of education.

At every level of teaching, both students and peers continually provide positive feedback. They appreciate my techniques, my enthusiasm, my preparedness, and my knowledge. I have earned many teaching awards that provide further evidence of my success in the classroom. I hope that this teaching statement will provide ample evidence of my choice of methods and their success when put into practice.

Teaching Experience

As a graduate student at Johns Hopkins, I led recitation sessions in the entire calculus series as well as both Analysis and Honors Analysis. Also, after just one year with the math department I was the sole instructor for Introduction to Calculus, an honor bestowed on very few graduate students in the department.

During the summers of 2007 and 2008, I instructed college graduates who desired to teach high school, preparing them to take an exam that covered every aspect of the high school curriculum. Prior to that, for two summers I worked with the Johns Hopkins program *Center for Talented Youth* which identifies young, talented individuals to participate in summer programs. Both experiences taught me a great deal about teaching, even at the collegiate level. Working with second graders on math problem solving, I recognized the importance of teaching students to listen to the ideas of their peers. In teaching future teachers, I saw the vitality of a deep appreciation for conceptual understanding.

Coupling the above experiences with five years teaching high school math, and it should be no surprise that I have a deep understanding of students' mathematical development. I know clearly what a student learns at multiple levels, and I recognize her experiences as a valuable resource to enhance her understanding of the present.

Evidence of Excellence

Awards I am proud to say that at every level of teaching I have been the recipient of positive reviews and accompanying awards. The Mathematics Department at Johns Hopkins so appreciated my work as a teaching assistant that they awarded me both the *Math Department Excellence in Teaching Award* in 2007 and, after just one year in the department, the *William Kelso Morrill Teaching Award* in 2005. In addition, while teaching high school mathematics, I was awarded the *Apgar Teaching Award* in 2003 by Roland Park Country School for demonstrated teaching excellence.

Comments In response to the question, "What aspects of this course were the strongest?" one student from Introduction to Calculus wrote:

> *The instructor. She was one of the most effective teachers I've had for math…I've taken courses similar to this in high school and the teachers I had for them made me dread each test. This course was the first time I walked in ready to show off what I was capable of.*

Other responses to the same question included my effective use of class time, an appreciation for my sense of humor, and my ability to read facial responses.

Ratings Johns Hopkins allows students to rate their TAs in a number of categories including Knowledge of Material, Explanations, and Enthusiasm. On a scale from 1 to 5, with 5 being the highest, my average rating was consistently above 4.5 in every category and class. Additionally, in my semester of teaching Introduction to Calculus, the students consistently rated my teaching effectiveness as "Excellent".

Teaching Style and Philosophy

I remain effective in the classroom through a combination of putting the students at ease, keeping them engaged, and helping them make connections between topics that deepen understanding. During the first class of each semester, I remind my students that their instructor is prone to error. She may momentarily forget how to add or subtract and the students should feel comfortable finding and correcting her mistakes. I believe this short statement helps the students recognize that every student of mathematics can stumble, and they play an important role in maintaining the integrity of our work.

Additionally, on the first day I often hand out index cards and ask them for their names and contact information. Each day of class, I use these cards to randomly call on students to respond to questions I pose throughout the lecture. I recognize that students can get behind or momentarily distracted, so I always try to call on the student before I pose the question. They feel less stunned by the process and more able to focus on their response rather than their fear. I am often impressed by methods students will use to solve problems in the more advanced classes. If a student provides a method of solution quite different from the one I anticipated, I follow up their method by sharing mine. This naturally leads to a discussion about the effectiveness of a solution. As often as not, the student will present the more effective method and we recognize anew the deep beauty of mathematics.

Finally, with the introduction of each new topic we look back and ahead to put it into the appropriate context. Reminding the students of similar techniques or results in other areas, we together distinguish the differences and how they originate. At the end of the class, I allow the students the opportunity to look ahead. I give them a taste of what is to come, and we discuss how our new material will provide insight. As an example, in every recitation session of multi-variable calculus, we first consider the analogous result in one variable. Looking at the old and new material simultaneously, students recognize for themselves why the derivative in higher dimensions only makes sense with a direction assigned and why the chain rule in higher dimensions requires the use of matrices. Being reminded of simpler material, they develop a better understanding of more complicated situations.