

# Teaching Statement

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During my time at Wayne State University, I have been involved in the education process as more than just an instructor. I have coordinated a tutoring center, organized a mathematics seminar for undergraduates, as well as taught undergraduate courses. All of these experiences have given me an opportunity to be involved in many different stages of undergraduate education, from their first semester in college to their last semesters as math majors. Through all of these experiences I have tried to share my love for mathematics. My passion and ability to explain concepts in different ways makes me a great instructor.

## 1 My Motivation

I enjoy teaching because it gives me an opportunity to share my love of mathematics with others. My goal is to help others see how beautiful mathematics can be. I try to accomplish this in class through enthusiastic lectures. This is not always an easy task. I find that most students believe that mathematics is a collection of arbitrary rules that are supposed to be used at seemingly arbitrary times. I correct this misconception by exposing them to the thought process behind mathematical concepts.

My other primary motivation is to make sure students are prepared for their subsequent courses. At Wayne State, I have had the opportunity to teach a variety of introductory courses. This means that a majority of the students I work with will have to take more math courses. Our students usually have not seen calculus and frequently have difficulty with some of the more basic concepts. I am determined to make sure they don't proceed before they are prepared. As an instructor, I find it unfair to send students to the next course without a strong foundation. Doing this only leads to frustration on their part as well as on their future instructors.

I want students to understand how powerful mathematics can be, because that is where I find a great deal of the beauty in mathematics. When students see the ideas behind the mechanics they are exposed to real mathematics. Suddenly they understand why they are doing something. This helps to reinforce concepts and techniques as well as motivate them. My favorite part of teaching is the communication of these mathematical ideas. It is how I am able to share my passion for mathematics most directly.

## 2 In the Classroom

At Wayne State University, graduate students are primary instructors for their sections. I have taught everything from remedial courses offered to help prepare students for college-level mathematics to second semester calculus. I was responsible for giving lectures, holding office hours, designing exams and quizzes as well as grading them. This gave me the opportunity to put a lot of time into thinking about how to best explain concepts and which concepts might cause confusion. Before teaching, I completed a one semester course called Teaching College Mathematics which helped prepare me immensely for the different aspects of teaching.

Students frequently come to math classes with anxiety and misconceptions about mathematics and whether or not they are any good at it. My approach to dealing with these anxieties is to make students more comfortable. Students who are relaxed and comfortable are more likely to be able to think. I interact with students during lecture, calling on them by name in the middle of working on problems and trying to

guide them toward the right answers. Most of their previous mathematics courses entailed their instructor lecturing at the board, not engaging them.

I begin engaging students by creating a comfortable learning environment. Students should feel comfortable enough to ask questions. It is important for them to understand that what learning is the primary goal as opposed to not being wrong. We can learn a lot from mistakes, by exposing flawed thinking and enabling it to be corrected. The most important part of my job as an instructor is to make sure that students are prepared for the subsequent classes. Having students expose their misconceptions prevents them from continuing to make the same mistakes well into their subsequent courses.

I put students at ease through use of humor and a casual lecturing style. My lectures are more conversational and informal, I try to engage them and ask leading questions. Learning their names within the first week and beginning to call on them during lecture is the best to hold their attention and involve them in the lecture. I look for confused faces, frowns, and smiles in the audience to see who may have a question or a thought they want to share. This helps me decide what material I should spend more time on and which ideas students are more comfortable with. Keeping track of where the students are during lecture helps me to give the proper amount of time to lessons that are confusing more students. This ensures that they move on from my course ready for their next semester of mathematics. I want to reassure students that not everything is easy and mathematical proficiency is a skill that requires practice. I believe that this is what scares students about mathematics. They have a preconceived notion that either you “get” math or you don’t. It takes time to gain intuition for certain concepts and to understand why various methods are in fact the right ones. When we learn a new concept, we require time to internalize and absorb it.

Students may also have difficulty in math classes because the subject feels dull or boring. My approach is to encourage students through personable, thoughtful exchange. The lecture appears more as a conversation where I ask leading questions and look for feedback from the students to see if the concepts are making sense. It makes them feel like they are participating in mathematics, and they are. I also use humor to engage students. I design my story problems each semester to be about a particular theme, such as velociraptors, which do not frequently appear in mathematics textbooks. I find that humor is a very effective tool for keeping students engaged. It helps make math seem less dull and makes it more relateable. Students enjoy coming to my class.

### 3 Alternative Teaching Methods and Situations

I feel that the most important aspect of instruction is communication. The best thing I can do to help my students understand is to be patient and give them my time. I find that one-on-one instruction can often clarify issues that might be unclear in class. Organizing review sessions for students outside of class gives them the opportunity to work together. By working together, students are frequently able to come up with excellent explanations I may not have considered.

Wayne State has begun offering computer courses. These courses are for remedial students who do not yet have the skills for college level mathematics and who are not adequately served by the local community colleges. In these courses, I meet with students once a week for two hours. Their tests, quizzes, and homework are done on the computer. The software we use also comes with video lessons for review and review assignments generated by individual student performance. They can receive assistance outside of the classroom in a computer lab that is staffed by undergraduate students and instructors. These courses are designed to allow more capable students to complete the course more quickly while at the same time giving students who need more support the help they need.

### 4 Other service

Before teaching at Wayne State University, I was a tutor in the Mathematics Resource Center, or MRC, for 3 years. This gave me an opportunity work with students one-on-one and challenged me to come up with different ways of explaining concepts. The MRC was also home to a Friday undergraduate seminar that I

spoke in as an undergraduate. I later became an organizer of the seminar. This entailed thoughtfully picking faculty and graduate students who could give appropriate talks as well as recruiting undergraduates to attend the seminar. Organizing the seminar meant that I was partly responsible for exposing undergraduates to new mathematics, which is something I love doing.

During the Fall 2011 and Winter 2012 semester I was the manager of the MRC, a position previously filled by the late James Veneri. I was responsible for hiring new tutors and organizing the existing ones to make sure that the MRC was appropriately staffed. This challenging experience taught me what to look for in employees and how to deal with difficult ones.