Teaching Statement
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My philosophy is that mathematics is for everybody. Ultimately, mathematics is the mental exercise of creating and defending a logical argument, and students at all levels are capable of mathematical thinking and stand to benefit from the mental exercise. As an instructor, I believe it is my responsibility to foster a learning environment that helps students learn and grow in their mathematical thinking in a positive and equitable manner. In particular, I have focused on four main classroom strategies to achieve this goal: transparency, collaborative learning, active learning, and growth mindset.

Transparency: From the first day of class, I am transparent with my students about my teaching methods and the learning objectives of the course - it starts with written statements in the syllabus, and continues throughout the semester as I emphasize action-oriented learning objectives for each day in class. I try to clearly communicate the reasons I structure my classroom the way I do, and the motivation for individual assignments and activities. This helps increase student “buy-in” to the learning experience and holds me accountable for designing a purposeful course that really works.

Math 1030, Introduction to Quantitative Reasoning: “I loved the print out notes. They allowed us to have exactly the material we needed to know right in front of us. There were NO guessing games as to what was going to be on the exams. I liked the weekly quizzes. They made me really study each and every week to prepare for the exam and I learned the material as we went.”

Math 2270, Linear Algebra: “Heather was awesome! She made this difficult class enjoyable and taught in a way that I could definitely understand. She really cares about her students and wants to make sure that everyone is learning, not just the top students in the class. She was one of my favorite professors that I’ve ever had and I would definitely recommend her class to anyone. She was always open for consultations and was very great at explaining the material. I can’t say enough good things about her.”

Collaborative Learning: Communication and collaboration is an important part of being a professional in any discipline. To this point, I organize my classes into small groups of 3-4 students so they have a group of peers with whom to ask questions, get feedback, and build connections. The learning community structure is also intended to foster a welcoming and safe learning environment in the classroom and to ensure that valuable learning experiences are not restricted to a privileged few.

Math 3150, Partial Differential Equations: “This instructor is amazing she makes pde’s interesting, fun and understandable. She teaches in a way that makes you come up with ideas on your own and provides a collaborative learning environment. This lady deserves a raise anyone who didn’t have her class is missing out. She teaches with the goal of true understanding from each of her students.”
Math 2270, Linear Algebra: “Heather is a great professor. The Linear Algebra class was a 2 hour class, which is daunting for any class let alone a math class. Heather made it engaging through encouraging group work and really working one-on-one with us to understand concepts. I cannot express how much I loved Heather’s class. (She didn’t pay me to write this).”

Active Learning: In my classes we use a combination of learning strategies, including lecture, discussion, group problem sessions, and video lectures. I encourage students to help others understand the material, whether it’s through video lectures or during in-class assignments. In my linear algebra course each week, some students are charged with creating a short video documenting them solving a problem and explaining their process. The remaining students are assigned to watch the video, then summarize and make comments. I’ve found the videos and comments to be thoughtful and of high quality, and they also help me gauge the strengths and weaknesses in students’ understanding.

Math 3150, Partial Differential Equations: “Heather is awesome. She presents the material in a discussion/problem solving based lecture, this methodology was a great way to effectively teach the methodologies.”

Math 3150, Partial Differential Equations: “The thought process for solving PDEs was well established in class. I often felt that I was well prepared for homework assignments. Processes and logic for solutions was well developed during class and we were encouraged to find solutions ourselves through the FFT Fridays.” Note: FFT Fridays refers to the weekly class sessions dedicated to students working in groups to solve problems related to that week’s content.

Growth Mindset and Making Mistakes: My experience as a mathematician has taught me that success usually comes as the result of many failures. My goal is to create an environment where students view mistakes as opportunities to grow. From the first day, I strive to challenge students to engage with difficult problems in class. These in-class assignments are based on effort, not correctness, to help students become comfortable with the struggle of growing mathematically. I encourage students to focus on improvement, and I build this into the structure of my assessments. For example, I will replace a low midterm score with a higher final exam score when the final exam reflects an improved understanding of the material. I also try to model this process for my students by acknowledging my own mistakes as growth opportunities. I’ve found this also helps me be more fearless about implementing new teaching methods in my classroom.

Math 3150, Partial Differential Equations: “One of the best math teachers I have had. Would highly recommend. Though the course was tough and the tests were challenging the information was presented very clearly. Always enthusiastic and encouraging. She made me think about what we were talking about and develop my own theories on the subject matter. If I had questions she was always willing to help.”

Math 2270, Linear Algebra: “Heather was one of the best math instructors I have ever had, and other instructors would do well to learn from her approach to teaching. Instead of always lecturing to us, she would have us actively work on problems together in groups. It was so much more
effective than the standard lecture format in other classes. Heather also got to know each one of us, and thus was able to give us better individual attention. Students are also sometimes nervous to ask questions, so many of them don’t when they’re afraid doing so will reveal they don’t know something everyone else seems to be getting. Heather noticed whenever any of us were struggling, and came over to help without us asking. That was a major help, and I was able to get the direction and help I needed without feeling embarrassed. I am extremely glad that I chose to take this class from Heather!”

Math 3150, Partial Differential Equations: “The most effective part of my learning was having the home works due every class period. It didn’t allow you to get behind. The quizzes were also helpful because it encouraged you to come to class the day of the lecture as well as the day before so that you knew the material. Overall, I felt challenged which overall bettered my learning experience.”

The process of transparently structuring my classroom with problem-based sessions that are active and collaborative has allowed me to get to know and engage my students on a personal level. Through the experience of creating and defending mathematical arguments - especially ones that are difficult for them - I’ve seen students open themselves up to the possibility that they could do more (and be more) than they realized. Observing this progress in my students inspires me to continue to challenge myself as an instructor and as a mathematician.