# Joshua Miller

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## Teaching Statement

My experience as a Graduate Teaching Assistant (GTA) at Sam Houston State University (SHSU) and Kansas State University (KSU) has helped me become a committed and driven teacher.

My first teaching experience was as a Master's student at SHSU where I was tasked with teaching Pre-Calculus Algebra and Mathematics for Managerial Decision Making and I was able to grow more as an instructor during my years of teaching at Kansas State University (KSU), where have taught College Algebra, Studio College Algebra, Plane Trigonometry, Pre-Calculus, Business Calculus and Calculus I, and it was during my time at these two institutions that I was able to teach in a variety of modalities that has allowed me to gain experience in three different areas.

### 1.1 Teaching Styles

**Recitation:** When I first came to KSU, the teaching dynamic that I had grown accustomed to at SHSU changed as I was used to teaching smaller courses; at KSU I was teaching a recitation to a larger group of students, which allowed me to better my speaking ability and board work since I was now in larger classroom. While working as a recitation instructor I had the opportunity to teach students without the burden of being the first person to show them new material. This was crucial in being able to help students that were lagging because I had the opportunity to try different approaches to the same topic and all that I needed to do was match notation. It was while teaching recitations that I was able to start experimenting with different styles of teaching. For me, I noticed that I had most of my student interaction from the students in the front row and those centered behind them, making a "T" shape. It is nice to have a significant portion of your students interacting with you, but I wanted more and the classrooms at KSU helped with that. Since most classrooms that I taught in had boards on three sides, I was able to constantly rotate through the boards which created a new "T" every time I moved, and this created an atmosphere were most of the students were comfortable to ask questions and answer them.

**Lecture:** As my time progressed at KSU, I was given the opportunity to teach courses, including College Algebra, Trigonometry, and Business Calculus, over the summer while working as or under a coordinator. In a similar manner to how I was teaching at SHSU. I was once again able to create syllabi, homework, lecture plans, and exams for my students. It was also at this point that I was able to further implement my new teaching style mentioned earlier in a lecture setting. Fortunately, this had a similar affect where students were better engaged and asking questions when the were confused.

However, the biggest change was when I was one of two students who were tasked with teaching several sections of eight-week evening courses. Even though it seems like this would be comparable to teaching summer courses, there were some challenges. Namely, engaging students, typically older, from a different walk of life and late at night. I overcame these challenges by having students do practice problems at the board or answer leading questions while working through examples. Lastly, it was during these courses that I started developing my own teaching notes that followed the textbooks and allows my students to follow step-by-step through solving many examples covered and not covered in class at their own pace. Plus, it acts a secondary source of free information separate from the textbook.

**Online:** As my time at KSU progressed, due to Covid-19 the university was forced to move to online and hybrid teaching arrangements and for me I was teaching predominately asynchronous online courses. During this time, I have had to use a variety of technological means to interact with my students ranging from Zoom for recitation or office hours to Canvas to administer homework and exams. I have had to create, manage, and run several Canvas courses or pages for Plane Trigonometry, Business Calculus, and

College Algebra which included making online quizzes/exams, uploading/recording videos, and running discussion posts. Teaching online has its difficulties, but I have been able to circumvent this by providing an abundance of ways for the student to learn. I strive to have a several videos available in a variety of means, from Canvas to YouTube, as well as lecture slides that correspond to the videos and separate lecture notes that I scan for them to read at their leisure.

It was during this time that while I had to rely more on technology, my students might not have that luxury. So over time I have found ways to make my lectures readily available for those without computers, and provide students with reliable alternatives to calculators, graphing utilities, and scanning equipment.

Throughout these courses I have learned and adapted many different principles that I routinely apply throughout my teaching practice.

## 1.2 My Philosophy on Classroom Teaching

My teaching philosophy revolves around two central ideas, preparedness, and flexibility since this allows for one to effectively conduct a class while remaining able to change your methods to better suit a situation or student. Prior to every recitation I prepare notes covering the problems that were assigned as well as the corresponding lecture material because I find that simply going over the homework with students does not help solidify understanding of what they learned during lecture. Also, by having prepared notes that cover what was taught in the lecture, I can mimic the notation that is being used without adding to the confusion that some students might have. In the case that I am the instructor on record, I strive to prepare my lectures in a way that engages my students by weaving a clear map of how each topic we discuss is related and builds upon one another. The way I accomplish this is by asking leading questions that still makes the student think, but also say what I want them to. This gives the student a sense of accomplishment at getting the "right answer," while still maintaining control of the lecture.

One of the most difficult part of teaching is making sure the students are fully comprehending the material that is being covered, especially when student engagement and motivation is low. For me, this is where my flexibility takes place. When faced with this dilemma, I try to tackle the problem in two ways. First, I arrive early to class; this allows for more student-teacher interaction without the strict student-teacher hierarchy. This simple change allows some students to be more comfortable asking questions or for help. Plus, even in the chance that there are no questions it provides a means to connect with your students because each one has a story and sometimes talking about topics besides math is all it takes to motivate them.

I strive to make my classes enjoyable to everyone that attends by being the bridge between mathematics and the programs my students are studying. For many students I might be their last math course or simply a gatekeeper to beginning their core classes, and I do not want to approach teaching as simply feeding them answers or steps to solving a problem. I want to demystify math for them by showing them how the material we are covering shows up in their field of study or how thinking critically can help them better prepare for later classes and life.

I believe that feedback is necessary to grow as an instructor and good feedback from students is a great reward for any instructor. Feedback from my students typically comes in the form of teaching evaluations, and my teaching evaluations are consistently positive. Apart from the typical teaching evaluations, I also ask my students to either email me or post on an ongoing discussion thread (if an online course) if there is ever anything that they feel that I can change or do better as an instructor to ensure that my students are receiving the best education from me that I can give them.

I am continually growing and evolving as both a teacher and a mathematician. My ongoing drive and passion to this profession and mathematics have always been a driving factor in how I shape my life. Through my experience as an educator, courses I have taken, and research I have done I am prepared and excited to teach.