

My teaching philosophy can be summarized by two objectives. The first can be described through a President Franklin D. Roosevelt quote, “It is common sense to take a method and try it: If it fails, admit it frankly and try another. But above all, try something.” The second objective is to engage the students inside the classroom as much as possible, as that will extend beyond the classroom.

I have tried a few different methods in teaching, including note-taking guides, inverted (or flipped) classrooms, hybrid classrooms (partly inverted), as well as incorporating Wolfram Mathematica into the curriculum. Some have been successful while others have not, but in the end, I am always trying something that I hope will improve my teaching, improve the delivery of content to the students, and improve their comprehension and understanding. When I find something that works, I try to do more of it. When I’ve tried something that wasn’t successful, I adjusted to try to make it better.

During my first semester of being the instructor of record, I tried the traditional lecture style of writing notes on the board. I quickly found that this style was not conducive to the type of teacher I am nor to the students’ ability to comprehend and take in the content.

Most of the times when I’m trying to learn in class I barely have time to write the problem and work down, so I definitely do not have time to comprehend it.

-Precalculus student (Fall 2012)

Instead of writing everything on the board, I created note-taking guides. I typed up the notes while leaving many blanks and empty examples. In class we would go through the guides together filling in the blanks and working through the examples. This reduced the amount the students had to furiously copy down on their paper while allowing me to minimize what I had to write so that I could spend that time engaging them.

The in class lectures and notes were by far the best place to learn the material in this class.

-Basic Calculus student (Fall 2013)

By not having to write down everything on the board, I was able to utilize the extra time by including more examples and focusing on why we attack problems a certain way rather than only covering the “how.” Simply memorizing a step-by-step process doesn’t teach critical thinking skills, nor does it give insight into the problem. By showing and teaching the “why” of a problem, students are much more likely to engage those critical thinking skills and reconstruct how to solve the problem.

I liked the way we went over notes and did many examples in class. The many examples were the most beneficial part to my learning. Also your ability to break things down and show why things happened was very helpful.

-Finite Math student (Fall 2014)

A part of “try something” involves always looking for better ways to improve the class by seeking out suggestions and looking for alternative methods to incorporate into my own teaching style.

A suggestion I have [for] improving the class would be to incorporate more quizzes.

-Basic Calculus student (Fall 2013)

A fellow graduate student used daily quizzes at the end of his lectures to summarize the day's material. I decided to incorporate them into my classroom as not only a way to encourage participation and engagement of the material, but also as a way for me to receive a daily check on the effectiveness of the lecture. It also helped focus my daily lecture on the key aspects and lessons I needed to address that day.

I like the mini quizzes at the end of every class to help make sure I go and that I have actually learned the day's material while in class.

-Finite Math student (Fall 2014)

I've taken advantage of opportunities to implement different techniques and philosophies in the classroom through the Mentorship Program in the Mathematics Department at the University of Tennessee. The "flipped classroom" has been gaining popularity in teaching pedagogy, and I was a part of its implementation in two different ways through a College Algebra course and a Calculus III course. In both situations the materials were developed by a faculty mentor, and I was in charge of the classroom implementation of these materials. The College Algebra course was successful, while the Calculus III course was not. By being involved with the College Algebra course, I was able to see how to design and develop effective materials and tools that aided the students outside of class. It was these outside-the-class materials that was the difference in the success of the College Algebra course.

The experience I gained from the College Algebra course helped me find better ways to implement and create new materials so that my next Calculus III class was a success. It was a valuable opportunity to see how important the materials designed for outside the classroom need to be in order to maximize the effectiveness inside the classroom. In addition, the Calculus III course demonstrated just how powerful the use of computer software can be in a classroom.

We used Mathematica in the Calculus III course in order to open up many more interesting examples without being weighed down by tedious and unnecessarily difficult algebra steps. For example, finding the center of mass of $\alpha(t) = (t^2 - 4t + 2, \cos(t^2), \sin(t^2))$ for $t \in [0, 1]$, assuming a density of $\sqrt{1 + x^2 + y^2 + z^2}$. Since little time was needed for the calculations, we were able to focus more on the "why" and delve deeper into the material to gain a better understanding of the process. This pushed the critical thinking skills and developed techniques that could be used for solving very different problems outside of class where the usual step-by-step procedure would not be useful.

At first I hated [Mathematica], but once I got used to the coding then I really liked it and saw how great of a tool it really is.

-Calculus III student (Fall 2015)

The second objective of my classroom is in the engagement of my students. If the students are not engaged, you've lost your audience, and no learning or understanding can take place. You have to be able to engage your students in a meaningful manner so that you create a relaxed atmosphere in the classroom that is conducive to learning, cooperation, and participation. I achieve this through several strategies.

I arrive early to class so that I have a chance to talk and engage with the students about topics other than mathematics. I ask them questions about their lives and what's going on around campus, and even talk about my life in order to get the students more comfortable talking to me as a person. I've found that they are more willing to ask their own questions, as well as answer the questions I frequently pose throughout the lecture, when they are comfortable talking to me outside of class.

It was also helpful that Darrin Weber asked questions to the class very frequently. As someone who rarely speaks up in class, I had no trouble asking and answering questions in class because the lecture felt very open and comfortable.

-Matrix Algebra student (Summer 2014)

Interacting with students before the class begins also helps them get to know their classmates. This helps when I have them complete group activities because they are more comfortable with each other and the environment, and they are able to more effectively work as a team.

I loved the environment. Having time to work with my peers on group worksheets helped me a ton.

-Basic Calculus student (Fall 2013)

I am passionate about mathematics and love sharing that with my students. My hope is that my enthusiasm creates an enjoyable classroom dynamic and engages them in the material.

It was easy to focus because of the instructor's excitement for the class. I enjoyed coming to class, even on cold and rainy days because he made it so fun and easier to understand the concepts.

-Basic Calculus student (Fall 2013)

The teaching style Darrin used was excellent. He was so enthusiastic and passionate about his teaching that it allowed me to be interested in the material and actually care about what I was learning. He is an excellent teacher; by far the best math teacher I've ever had.

-Precalculus student (Fall 2012)

The instructor was great. He came into class everyday with an energetic attitude and a willingness to help the students.

-Calculus III student (Spring 2016)

Improving my students' understanding of the material and encouraging their appreciation for mathematics can be achieved through various methods of teaching, but it also means being enthusiastic about what I am doing. By engaging my students, I can motivate them to invest themselves into the material and take an active role in their learning. I want to be relatable and approachable so my students are comfortable coming to me for help, but I can also engage my students through my methods and the structure of the course. By having them take an active role in the classroom through group activities and class discussions, they can be captivated by the material, and we can delve deeper into our topics to explore the beauty of mathematics.