

## 1. PHILOSOPHY

In the last five years, I have learned a lot about what it takes to be a good teacher. Always open to improving my teaching, it is my goal to give my students the best possible educational experience. The ability to evolve in my teaching philosophy allows me to continue becoming a better and more passionate educator. I believe the keys to a successful learning environment are creating a community in and out of the classroom, promoting student-centric learning, being open to innovation, and frequent self-introspection.

**Creating a community.** I strive to make the best possible learning environment by creating a community in which students are comfortable asking questions, offering feedback, and participating in a discussion. Even as an instructor, I allow students to guide the lecture and make it more of a conversation, engaging the students in the material. This semester I am the instructor for a linear algebra course where the atmosphere we have created allows students to ask very interesting, thought provoking questions. Often, they beat me to the punchline in my material. It is so exciting when students can lead a lecture in this way. I also frequently allow my students to complete quizzes in groups, often picking the groups for them. This allows them to experience diversity, and learn how to view problems from other students' perspectives.

Every day, I strengthen the sense of community by arriving to class early and having conversations with my students about common interests before class begins. I share with them my love for math and teaching. I try to inspire my students to participate by being as awake, energetic, and enthusiastic as I can be in the classroom. Students can expect the same passion in my office hours, too. Those who are less comfortable with asking questions in class can benefit from the more intimate, one-on-one atmosphere. It is during these times that I feel more connected with my students and am able to reach them individually.

The community I create with my students persists *outside* the classroom as well. Through the use of an online forum, we continue our discussion after we leave. Students ask questions, and everyone is able to contribute to an answer. I can endorse questions and answers, contribute my own thoughts, and ask my own leading questions. I have used the forum for four years, and have seen a lot of benefit in adopting this asynchronous learning style. Some students suffer from math anxiety, and are uncomfortable participating in person. For today's online generation, these forums offer a level of anonymity that allows those students to still contribute to our community. Before the semester even starts, I invite students to learn how to use the technology by giving them a "first assignment" to introduce themselves and have discussions with each other about their interests. This sets the tone for the rest of the semester: online, and in the classroom, we are a community equally working toward the common goal of learning mathematics.

**Student centric learning.** I believe that a successful classroom is student-centric, and constantly evolving to meet its students' needs. Students thrive when they are directly involved in their learning. I invite students to participate in frequent formative assessments that cater to my teaching in the classroom. Feedback on these assessments gives me more information about the processes in which my students are learning. I start with a "pre-semester evaluation" in which I ask students to share their mathematical background, their personal interests, and what they and I can do to create the best learning environment. I give frequent anonymous "mid-semester evaluations." Questions vary by semester, because every student is different. I always include questions about the effectiveness of my teaching style, but also invite the students to reflect on their learning style, what they are doing successfully, and what they could improve. These opportunities to reflect teach the students the symbiotic relationship between teaching and learning.

My students know that I take their suggestions seriously, and use them to improve my teaching. The most common request I receive is for more worked out examples for the students to practice. In response to this, I try to balance the amount of time we spend on discussion and instruction. I encourage frequent

use of the forum to ask questions, and take extra time outside of the classroom to compile worksheets, post extra examples, and finish working out thoughts from class. For example, at my students' request, I have recently started posting polls with true and false questions to our forum. This helps them learn how to think critically and justify their answers with counterexamples or thoughtful reasoning.

**Willingness to innovate.** Student-centric teaching provides many opportunities to innovate. For example, this is what led me to use the online forum. Similarly, in the Fall 2015 semester, I discovered that I could project my tablet to a screen and use an electronic pen to teach, facing my students. I tried teaching this way for one week, and then asked for feedback. It was so positive that I have taught this way ever since. It is a natural way to write and communicate with my students, and allows me to watch their reactions and adapt my teaching methods in real time. It has even allowed me to make and share dynamic graphs and diagrams. For example, when lecturing a calculus course, I used an online graphing tool to create a tangent/secant slider to help my students visualize the limit definition of the derivative. I have also used this as an opportunity to provide my students with partial notes which we fill out together. We translate theorems and definitions into English, use them in examples, and focus on the process.

Another example of the innovation that I have incorporated in my classroom is creating a weekly review day. The last day of a three-day week, I give a brief quiz and then as a group we engage in a discussion on what key concepts were taught during the week. This strengthens our community mentality, and allows everyone to catch up and ground themselves in what we have learned that week before we move on in the material. This class is less formal, and allows less outspoken students to participate.

**Self introspection.** Teaching is something I am very passionate about. I spend a lot of extra time outside of the classroom coming up with new ways to provide my students with the best possible educational experience. Often, I seek out the advice of more experienced instructors in our department with this goal in mind. I always try to remember what it was like to be a student learning mathematics for the first time. I remember the challenges I had with the material, the questions I asked, and how satisfying it was when I found an answer. It is this self-introspection that drives me to be a better teacher. I take great care to warn my students about common misconceptions, or when a new concept is particularly challenging. Moreover, I am honest and open about admitting that I was challenged by the material as well. Putting myself in their shoes, I can sympathize with them and remind them that I was once a student, too.

I try to remember the teachers who were successful in fostering my interest in the material they taught. At all times, I incorporate my favorite memories of learning into my teaching. I want my students to enjoy mathematics, so I revive those moments in which I truly enjoyed the process of mathematics. In my experience, successful teachers made learning fun by doing special examples and applications that stimulated my interest, telling stories about their own experiences or the material, and showing a genuine interest in students' questions. They parsed difficult questions, asking what they were about or whether we had seen something like them before, to make things easier to digest. Their approach taught me that mathematics is a process, not a list of answers. I make sure to adopt this in my own classroom, too. In fond memory, I run across the room emulating Achilles and the hare to teach about geometric series or make myself dizzy spinning in circles to teach polar coordinates. I make sure my students know that I am having fun with teaching, because I know that I learned best when my teacher was having fun.

**Final Thoughts.** Over my five year teaching career, I have taught a variety of courses to a very diverse group of students, with many different learning styles and backgrounds. In the freshmen level courses I have taught, I have found passion in learning how to teach students to whom math comes with great difficulty. Being told after the fact that I have helped some of them to find love for math has been a truly rewarding experience. This has been a constant fuel to my fire to explore the symbiotic relationship between teaching and learning. For the last five semesters, I have even had the opportunity to lecture my own courses in Calculus and Linear Algebra, and write my own curriculum. It has been some of the most fun I have had teaching so far. I enjoy teaching, and I care deeply about my students' educational experience. I believe my experiences have prepared me well to take on the responsibilities of a faculty member, and I look forward to continuing to learn and evolve in my teaching abilities at my next institution.