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Teaching Philosophy

I believe that the underlying motivation of higher education should be to enrich life and broaden horizons. I feel successful as an instructor when I create a safe learning environment in which students obtain a working knowledge of course content, critical thinking skills, and a general appreciation for mathematics. My approach in the classroom is motivated by these goals and is based on theory and practice. In particular, I have seven years of classroom experience teaching mathematics to undergraduates of various backgrounds and abilities, and I received my Graduate Certificate in College Teaching from the University of Iowa.

At the beginning of each semester I create a welcoming environment by getting to know my students and helping them get to know one another. One way I accomplish this is through the use of the following icebreaker. First, I have the students fill out a brief questionnaire about themselves and their general likes and dislikes. Once they have completed the questionnaire I have them get into small groups and mingle by sharing their answers. I usually answer the questions myself and share them with the class before splitting up the students. Finally, I have the students turn in their cards at the end of class which helps me get to know the students individually. This icebreaker always succeeds in building a more comfortable classroom on the first day.

Classroom climates can change as the semester progresses, so I use student evaluations to monitor sentiment about the course. I give anonymous evaluations so that students are less likely to censor their opinions. My evaluations typically consist of questions that address the following: is the student comfortable with the class, what can I do to help them succeed in the course, and what can they do to achieve success. Implementing individual student feedback can be very beneficial to the class as a whole. For example, I once taught a late afternoon precalculus course in a long, narrow classroom. It turned out that one person in the back row had difficulty reading the board because it was very dusty and far away. I switched to using the document camera after reading this on his evaluation, and this benefited the entire class as I was then able to put the lecture notes online. I think that part of being a successful instructor is being versatile and receptive to feedback.

I want my students to have an active role in the course and take responsibility for learning. One of my favorite teaching techniques is to have students create questions instead of just answering them. As part of a homework assignment in a first semester calculus course, for instance, I may ask the class to design and solve an optimization or related rates problem. Not only does this promote a working knowledge of course content, but it also helps students realize that just getting the correct answer is not the ultimate goal of doing mathematics. Having students design their own questions forces them to think about the entire problem solving process. In the future I would like to experiment more with this technique in upper-level undergraduate courses by having students create portions of their own exams.
I stimulate my students’ interest in mathematics in several different ways. I occasionally give bonus problems to challenge students and expose them to mathematics that they may not see otherwise. Once a student has been introduced to geometric series, for example, I may ask them to compute the area of the Sierpinski square. I also discuss important historical figures in mathematics whenever possible. Just recently in a precalculus course, after introducing basic set notation, the real numbers, the integers, etc., I was able to mention Georg Cantor and how controversial his research was. This really brought the material to life and I could tell that several students were genuinely interested in that historical tale. Methods such as these can really motivate students to pursue mathematical ideas independently outside of the classroom.

I teach my students that mathematics is a language that can describe the otherwise indescribable. Similar to literature, there are poems, short-stories, and even great novels which contain places and objects that are only accessible though that medium. However, just as in literature, one must learn the basics of the language before attempting to read or write. It is my job as an instructor, regardless of a students initial desire to learn, to change the way they view mathematics and to help them see the beauty of the subject along the way.