

PREFACE FOR TEACHING AND LEARNING:

October 20, 2022

I teach a variety of math classes at CMC. Since my last promotion, I have taught Math for Liberal Arts, College Algebra, Survey of Calculus, Introduction to Statistics, Calculus II, and Calculus III. And last summer, I had the pleasure of teaching an independent study in Physics I, which I am now credentialed to teach.

Prior to Covid, I always taught math in-person, utilizing white boards and student interaction. I enjoy giving group work to foster collaboration to promote more complete learning of each new topic. I give group work in the middle of class, and then again at the end, allowing me to gauge their understanding of each new concept while I am in the room. I have had feedback that this method is, perhaps, the most beneficial technique that I employ. It also fosters social connection for students, and encourages them to form cohesive study groups.

During Covid, I had the opportunity to learn new modalities for teaching and learning. We went remote, and I had to quickly learn how to teach in remote – real time. I became quite proficient at using Webex for my lectures. It was quite challenging at first, because I used my work computer, and I typed the equations out in Equation Editor in Word. It was slow and laborious, and the students felt it was too challenging to learn math in that format. Quickly after, I purchased my own iPad along with an Apple Pencil, opening up a whole new world for me and my classes. I was able to teach the way I prefer, with handwritten problems in a way that they can see the entire process as it unfolds very similarly to how it would be if they were in person. I continued to give group work in the middle and end of class. During this time, I also became much more proficient in Canvas, and in Canvas quizzes in particular. I was able to write quizzes and exams, and learned some coding in Latex to better write complex mathematical expressions for the exams and quizzes.

My philosophy for teaching includes robust interactions between myself and the students. I highly encourage, almost to the point of demanding, responses from them during the lectures. This allows me to see if they are understanding the material in real time. I do this in person as well as in remote – real time. For each topic and problem, I ask the students to explain, or even guess, the answers to my questions. I then go about further explaining the topic/question at hand. My goal is to have my students leave my classes with a comprehensive understanding of the bulk of the material in their class so they may go on to the next class and/or their next job. I desire for them to take this mathematical knowledge into their future academic endeavors, careers, and life experience. I make certain to include application problems for each section so they may see the utility of our lessons. I believe mathematics is pertinent to all aspects of life. Even if students don't directly use the materials taught in my classes in their futures, they should come away with useful life skills including problem solving and critical thinking skills.

To further solidify their immersion into mathematics, I strive to inject as much application as I can in a way that will directly apply to course materials. This includes presenting application/modeling problems out of their textbook, along with original problems I construct for many of the sections we cover. I enjoy

constructing my own problems, as I often find them to be more applicable and user-friendly than some of the textbook problems. I have had experience writing textbooks in which I have had feedback that the problems are more clear, concise, and user-friendly. I use this experience and expertise to broaden the understanding for students, and give them additional material to study and engage with.

I also want them to enjoy mathematics, see real-world applications, and have some fun with it all. In College Algebra, we apply average rates of change to a skiing/snowboarding project. We go on a field trip where students ski, snowboard, or stay at the bottom to time their classmates. (There is no cost involved as students either already have a pass, or they use their phone to time the skiers/riders). They use the data collected (distance and times) to construct linear regression graphs for each skier in Excel. College Algebra, Math for Liberal Arts and Statistics also have an assessment exercise in linear regression which reinforces what they learned from our field trip. In Math for Liberal Arts, we do a “learning to play bridge” project during our probability section. This allows them to observe and use some probability in a fun and interesting way. In my Calculus classes, we learn to code in various scientific and math related program languages. We also have an opportunity to use 3-D printed models for various projects printed by former Calculus students. I have had a fair amount of feedback that all of these projects have been extremely educational and fun.

I am open to constructive criticism from students. In the past, I have had feedback that I speak and write too quickly. I have made a conscious effort to slow down, and I remind the students to pause me whenever necessary. I have also been told that I sometimes skip steps. I have remedied that to the point that some students now ask me if they can skip steps. I feel it is the right balance, as I know that other students still need those extra steps.

I attended a Trauma-Informed Pedagogy Workshop in January 2022. I have been working to apply many of the concepts to reach students according to unique learning styles and individual challenges.

In conclusion, I am fully committed to excellence in teaching. I will strive to find new ways to reach students, and I am open to new methods of teaching including materials, modalities, and delivery options. I will continue to learn and grow as both an educator and a life-long learner.