

Teaching Philosophy

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English mathematician G.H. Hardy beautifully stated in *A Mathematician's Apology* that “A mathematician, like a painter or a poet, is a maker of patterns.”

This quote was one of my early inspirations to study mathematics, and I try to keep it in the back of my mind as an instructor now. When I teach Calculus, Differential Equations, or Trigonometry, it is easy to become too focused in the details rather than on the big picture. However, if one does not dig down into the weeds to find those patterns and overcome the struggles, it is harder to reach the ‘Eureka’ light bulb moments. Maintaining this balance between teaching necessary curriculum and portraying mathematical appreciation has been one of the most challenging yet interesting aspects in my teaching experience so far.

I try to answer three questions to implement my teaching philosophies in the classroom: One—“How do I get my students to be excited for this class?”

Two, “Can I build a positive classroom atmosphere?”

And finally the third question, “Can I evolve my teaching style and continue to grow every semester?”

In my experience, the best way to get students excited about math is to be passionate and competent about the subject myself. This means devoting adequate time for class preparation, reading corresponding chapters, and having numerous examples at my disposal. What I do prior to class is just as important to me as what I do during class. Finally, I try to find a couple of outside sources to illustrate interesting applications or real-life phenomena that will provide students another perspective to the complex problem we have been working on. For example, I mention applications in economics, probability, game theory, graph theory, computer science, biology, etc. during my Calculus course.

Next, I make a keen effort on building a positive classroom atmosphere by setting class expectations and utilizing humor. Setting expectations at the beginning of the semester with regards to assignments, exams, and grades as well as at the start of each class provides students with both short and long-term outlooks, thereby making them feel more secure.

In addition, before class starts, I try to connect with the students by writing a few math jokes or puns on the blackboard. Students usually chuckle or respond with “That is a really bad joke.” This translates into conversations and ensures that they are tuned in. This helps in developing my relationship with the students and after a few weeks in the semester, they feel comfortable, do not hesitate to ask questions, and are more open to learning new concepts regardless of the difficulty of the material.

Lastly, I like to experiment with my teaching style based on the subject, structure, student composition, and classroom arrangement. I have experimented by students explaining their solutions to fellow classmates, solving problems in small groups, and changing how I conduct office hours. Making a conscious effort to meet at a common place, hold flexible timings, and arrange study sessions have yielded more participation, which turns into higher learning

growth. Altogether, my teaching philosophy revolves around keeping the students engaged, communicating complex material succinctly and clearly, and providing them with adequate resources and assistance.