Teaching is about inspiring

Many people, when asked about mathematics, will respond with some negative remark like “I hate math” or “I wish the person who invented math had never been born.” Of course, sometimes responses are not outright hatred, but instead apathy. As a teacher, I see such negativity and indifference as a challenge. My goal is to build my students’ confidence by gradually pushing them out of their comfort zones, and at the same time, to inspire them to confront these challenges by offering them support and guidance.

My passion with teaching mathematics began in a disadvantaged high school; I observed very poor, uninspired teaching in many subjects, but my mathematics teachers were amazing. I never felt the thrill for my non-math subjects, and being a first-generation college student, I also did not have informed academic motivation at home. My phenomenal math teachers set me on the path toward becoming a mathematician, and it is this realization that ignited my interest in teaching.

I strive to be a role model and mentor in all of my teaching endeavors, which have included five classes at LSU, eight classes at UMass, mentoring research projects in Smith College’s post-baccalaureate program, two lectures to middle school students in India, and a variety of summer programs. While teaching, I often weave in anecdotes from my personal and professional life. This communicates to my students that I care about them as people, not just as students. I give review sessions, discuss questions after class, and hold extra office hours—what is better encouragement for students to work hard, than to know that their instructor is working hard for them!

Some of my calculus students have told me, early in the course, that they fear they may never be able to do calculus. By slowly pushing these students out of their comfort zones, I have found that I can build their confidence so that they are no longer intimidated. I once offered my calculus students the opportunity to participate in my current research after class. As soon as I explained the basic concepts, they asked me if they could work out some examples. I sent them to the board in small groups and gave each group an example to work out as I walked around to give advice. We spent over two hours working through examples in my research area. The next day in class, they were ready for calculus—it was a breeze, and they had a new-found sense of confidence!

Last semester, I taught Math300 (Introduction to Proofs), a transition course between computational math classes like calculus and more theoretical proof-based courses. Even though writing proofs is notoriously difficult for nearly all students at first, they can often be guided to make exciting discoveries if the reassurance is genuine and the examples are solid. During one of my Math300 lectures, I introduced the Division Algorithm (the first hour-long proof they saw in the class). Instead of just stating the theorem, I led the class in discovering it through a series of examples. Armed with these examples, my students were able to predict what the theorem should say and were even able to sketch a plan for the proof of the theorem!

I always begin each semester with trust that my students will succeed. Even if some are not ready to have faith in themselves, I am confident in their abilities. During an honors calculus class, I challenged my students with an undergraduate research project. At first, the students were hesitant, and some were even reluctant. I negotiated funds to hire upper-level undergraduate students to mentor my students. Under their supervision, my students made posters using the LaTeX poster package, and several put the posters up in the halls of the mathematics building. Even several years later, some of the students still tell me about the confidence that project built.

As a teacher, I strongly feel that it is my responsibility to inspire and convince students that they are capable of rising to ever-higher challenges. By asking students leading questions, giving them interesting assignments, and motivating them with challenging work, I am able to build their confidence and to develop in them skills that transcend my course. I trust my students to succeed and, even those who had previously disliked math, respond in ways that often surprise themselves.