

Teaching Statement

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“It would be a shame to let such a good lecture go to waste,” the math professor said, by way of explanation. Their class meeting had fallen just before a scheduled academic break, so it was perhaps not surprising that when a young graduate student walked into class many minutes late, he found the classroom devoid of students, and himself alone with the professor. What was surprising, however, was that as he entered, the professor was already well into the lecture, teaching mathematics to an empty room.

This true story, passed down to me through oral tradition, wonderfully illustrates the mindset of the stereotypical math professor: aloof, strange, and more interested in mathematics than in the students he is teaching. But, as endearing as this professor’s eccentricity may be, this story also demonstrates the type of math teacher I strive *not* to be. Through my many years of teaching, tutoring, and TA-ing, I have trained myself to be a math teacher who cares deeply about mathematics, but cares even more about his students. My teaching is based on a real relationship with my students, and I strive to be a teacher who ultimately “teaches the people math” rather than “teaching math to the people.”

A great teacher teaches not for his own sake, but for the sake of his students, whom he chooses to serve in love. Good mathematics teaching, therefore, and indeed all good teaching, must be based on relationships and must focus more on the students doing the learning than on the material being taught. Granted, studying math purely for its own sake is a noble, worthwhile endeavor, and an intimate knowledge of the mathematics we are teaching is an integral component of teaching well. But all too often, we treat teaching like either a mechanical exercise or an egoistic soliloquy of our own mathematical musings, all the while ignoring the actual students sitting in front of us. This is particularly problematic because virtually any math we teach, especially at the undergraduate level, can be found in a video or a set of notes online, where it is explained perhaps even more clearly and succinctly than we explain it ourselves. If we are to provide a truly valuable service to our students, we have to approach our teaching less like an information-regurgitation session and more like a master-apprentice relationship. My goal is to *show* my students how mathematics is done well, answering their questions, and helping them learn and fine-tune their creative problem-solving abilities. Only by approaching my teaching as an act of service and forming real master-apprentice relationships can I effectively teach my students mathematics and help mold them into the people they are called to be.

Through my own teaching over the last few years, in flipped classrooms and traditional lecture classrooms, in courses that were sections of a much larger course and in single-section courses in which I designed a large part of the curriculum myself, I have learned how to be precisely this type of teacher. I have done this, first and foremost, by trying to treat each class and each encounter with students as an opportunity to serve. Teaching done in this manner, with a generous spirit and a welcoming smile, always seeking the good of the students, happily and patiently guiding them through concepts, can truly transform students’ lives. Furthermore, I have tried to serve my students well, not just within the confines of our scheduled, preordained meeting times, but whenever I encounter them. Some of the best teaching I do happens not in the classroom, but in office hours and in chance encounters on campus. I therefore place great emphasis on the importance of students coming to my office hours, even giving them extra credit for doing so. By going out of my way to help my students, I have prevented them from being mere cogs in the machine and have been a much more effective teacher. As one of my students testified on a teaching evaluation, “[He is] very committed to helping me in and outside of class and is one of the major reasons why I did not fall between the cracks throughout this semester.”

I do my best to base my teaching off of these solid relationships I have formed with my students. Among other things, this means that instead of teaching the same material the same way every time I teach a class, I base my teaching off of the particular students in the current class. In order to do this well, however, I first have to actually *know* my students. I go to great lengths, therefore, not just to remember my students’ names, but to know where they are coming from, what their goals and dreams are, how they think,

etc. Then, with this knowledge in hand, I adjust my teaching to the particular students in front of me, addressing their concerns and struggles, answering their questions, and making sure no one falls behind. All too often, professors attempt to achieve this goal by simply pausing occasionally to ask “Does everyone understand? Are there any questions?” and when they get no response, they assume this means that everyone understands, and they move on. But because I know my students well, I am able to read the true meaning of their silences and know whether something needs to be repeated or explained differently. Instead of just asking general questions to the class, I call on individual students by name to keep them engaged. When I suspect that a particular student might be struggling with an explanation I just gave, I ask that particular student what was clear and what was unclear in my explanation. This simple act can help give her the courage to make her confusion known and can help me to zero in on what the class as a whole is and is not grasping. Furthermore, this need for individualized, relationship-based learning is one of the many reasons I’ve found a flipped classroom format extremely effective for teaching math courses. This format has made it easier for me to form real relationships with students, to address their specific questions and conceptual needs more systematically, and to give them valuable hands-on experience by doing math *with* them rather than teaching math *at* them.

The ideal professor-student relationship should be modelled more after a master-apprentice relationship, so a good professor must strike a balance between relatability and professionalism. I have worked hard to create this balance in my own teaching so that my students might see me as both a respected and an approachable authority figure. This fact is reflected in my teaching evaluations. As my students put it, “he was very personal, yet remained an authoritative figure,” and “[f]or you being a graduate student, I was impressed at your ability to display great professionalism, while also being extremely approachable.” Relatedly, in teaching a balance must also be struck between being entertaining and relatable, and being clear and precise. Though lately there has been a laudable emphasis on making mathematics engaging and fun for students, and I have done this in my own teaching, engaging teaching is only worth so much if it is not accompanied by good mathematics. Capturing students’ attention is only useful if we also provide them with clear, meaningful, and insightful explanations that actually answer their questions and enhance their understanding of the mathematics at hand. I have come to live out this balance well in my own teaching by having both a “contagiously ecstatic interest in course material” and, as another student put it, “the clearest mathematical explanations I’ve heard in several years.”

Having built up these many strengths as a teacher, I am now excited to use them for the benefit of my students as a full-time math professor. First of all, I will continue to build good, meaningful relationships with my students and to approach each class in a new way, based on the students’ current needs. Practically speaking, this means that instead of simply imposing a preexisting heuristic as to how I will teach each class period, I will use my experience with a variety of different teaching styles and formats to teach in whatever way will best help the students I am teaching at the moment. I hope to continue using a flipped classroom format when feasible and to use other formats like inquiry-based learning and undergraduate research mentorship to better show students the thrill and excitement of mathematical discovery. But I also look forward to continuing to teach classes in a more traditional lecture format when appropriate, lecturing in a way that is both engaging and clear, that both meets students where they are and challenges them to pursue even greater understanding and higher truths.

A love for mathematics need not preclude nor conflict with a love for teaching. Rather, it is just the opposite. A true love for mathematics puts us more deeply in touch with that reality which lies at the heart of all things, and thereby helps us to better know and love our students. This is the truth that I hope to live out in my career as a mathematics professor. It might be said of our stereotypical professor, lecturing to an empty classroom, that “after all the people were gone, he was still there, teaching the math that he loved.” But, as an altogether different kind of mathematician, I hope that when my time comes it will also be said of me, “after all the math was done, he was still there, teaching the people whom he loved.”