Teaching Statement
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1 Philosophies

I believe that there is no such thing as an immutable philosophy of teaching. Although I hold certain ideals about teaching which are independent of the course being taught, my goals for the students and the specifics of my classroom instruction are heavily dependent on the class that I’m teaching and the students themselves.

There are a few things which I believe every teacher should do for every course. The first is to be well-prepared for every class. I have found that once students begin to think that I am not ready to handle questions about the material, it becomes almost impossible to get them to come to me for help. For this reason, I always project a confident, professional image in the classroom. Before every class, I work through the homework and example problems for that lecture, looking for possible places where students will ask questions. This makes me able to answer these questions without noticeable pauses or appearing confused, both of which could make students less confident in my abilities to help them.

The second fundamental tenet of my teaching is to be friendly and approachable. I make constant references during class about my office hours, availability after class, and willingness to make extra time by appointment for anyone who is having trouble. I have no doubt that this makes my students more likely to come to me for help. Several times during my teaching career I have had students from sections of a course aside from the one I was teaching come to me for help because their roommate, friend, significant other, etc. told them that I was so helpful.

Finally, I believe that it is important to be enthusiastic. If it does not appear to my students that I, someone who does mathematics for a living, am interested in the material, they will wonder why on earth they should find it interesting. I always appear animated and excited in the classroom, even if describing a concept for the second or third time. I communicate through body language, voice inflection, and word choice that the material is fun and interesting, and try to project this enthusiasm onto my class.

Although I always try to exhibit these traits, there are some aspects of my teaching which I may change from quarter to quarter. Although it is a gross oversimplification, for the sake of illustration I will break mathematics courses down into two broad groups: introductory and advanced. Here, by an introductory mathematics course I mean one that is required for most students, regardless of major or interest. Usually this includes all courses up to, and possibly including, differential calculus. By advanced mathematics courses, I mean ones which are intended for students who have already demonstrated some aptitude for and enjoyment of mathematics, and whose major is usually related to mathematics in some way.

2 Introductory Courses

When teaching an introductory math course, my most strongly held belief is in each student’s responsibility for honest self-evaluation. Since I spend only a small amount of time per week with students in class, I feel that it is imperative that they do as good a job as possible of judging for themselves their level of understanding of the course material and readiness for class, quizzes, and exams. This way, if and when students reach a point where they recognize that they are not understanding a concept, they will be able to come to me for help. I explain repeatedly in class that the best way for students to know whether or not they understand a section and are prepared to be tested on it is to see if they can do every homework problem, without outside help, and without becoming lost or confused.

This being said, obviously I wish to most efficiently use the time that I have with the students in class to give them the tools that they will need to profitably put this time and effort in. To this end, in such a course my main focus is on a polished and friendly delivery of as many clear examples of the application of fundamental concepts as possible. Obviously I don’t consider quantity more important than quality; a poorly explained or incomplete problem can actually impede understanding. However,
in almost every introductory mathematics course that I have ever taught, the primary mode of studying for most students seems to be to examine their class notes. Therefore, I believe that it is imperative for each student to have at their disposal as wide a variety of types and difficulties of correctly solved problems as possible.

I know that many instructors say that their primary goal while teaching is to facilitate interest and discussion among students, so that they can be active participants in the learning experience. I wholeheartedly agree with this sentiment, and always hope that this is the case for any class I teach. However, I believe that in many introductory classes, an instructor should first and foremost make sure that students can capably utilize the fundamental concepts of the class. For students who get to this point, I am thrilled to discuss more advanced and challenging concepts and push their boundaries, but for students who in some cases haven’t even done mathematics of any sort in years, we must make sure that they can walk before we let them run.

3 Advanced Courses

On the other hand, when teaching a more advanced course, I usually find that students are already fairly comfortable with basic mathematical concepts, and perhaps more importantly, are able to accurately gauge their progress and level of understanding. For such a course, I think of myself less as the imparter of information to be learned by the student and more as a guide to help the student begin the process of mathematical creation themselves. For example, at the Ohio State University in Summer Quarter 2006, I was the recitation instructor for Math 787.03, a real analysis course for graduate students geared towards helping them pass the real analysis qualifying exam. In this course, I geared class time much more towards participation and discussion than I would in, say, a calculus course. I set aside at least half of class time for students to come to the board and present solutions to homework problems. During these presentations, I would encourage other students to voice any questions or ideas that they had, and sometimes we would take these ideas and create several different solutions to the same problem. Only when the class as a whole became stuck did I offer a hint or a direction to proceed in. I used the remainder of class time to present solutions of tricky problems to the class. Even during this time, I would try to involve the class and have students fill in steps of the proof themselves, to both ensure that they were following along and to give them the confidence that they would need to eventually attempt similar problems on their own. Several students either personally told me or mentioned in their written evaluations that at the end of the course, they felt much more confident and prepared for the qualifying exam.

4 Qualifications

I have been teaching at the university level since 1999, during which I have been a lecturer eleven times and a recitation instructor eleven times. During Autumn Quarter of 1999 and Winter Quarter of 2000, I taught as an undergraduate, for which I was selected as one of only 17 instructors from a pool of 98 applicants.

I have taught sixteen different courses, from high-school algebra to graduate-level real analysis. I was chosen to be the instructor for the first ever recitation section for Math 787.03 at Ohio State, a course designed to prepare incoming graduate students for the real analysis qualifying exam.

I was the sole recipient of the first Postdoctoral Teaching Award given by the University of British Columbia in 2008. I was a four-time finalist and one-time winner of the Ohio State Mathematics Department Excellence in Teaching Award for graduate students. I was nominated by the mathematics department for the Ohio State Graduate Associate Teaching Award, for which there were only 125 nominees out of over 2500 eligible candidates. I have consistently received student evaluation scores well above the average.

Most importantly, I have, in nearly every class that I have ever taught, heard a student say to me some variation of “I could have never made it through this class without you,” which, to me, is what any teacher should strive to achieve.