My formal teaching experience comes from my teaching assistantships at Stanford University, where I have had the opportunity to teach linear algebra and calculus in one and several variables, in both regular and honors versions. In addition, I have held duties as a course assistant for courses in modern algebra, analysis on manifolds, and real and complex analysis.

In preparing to write this statement, I reflected on the experiences that have shaped my approach to teaching. Among them, I count as most important my exposure to a wide range of teachers, from high school to graduate school. Throughout, I remember most fondly those classes taught by teachers who displayed mastery of the subject, clarity of presentation, and good organization. Moreover, my very choice of a career in mathematics can be traced to the influence of teachers that communicated excitement for the knowledge they imparted.

Being in front of a class carries great responsibility, and it can result in anxiety for a beginning instructor. Fortunately, I had access to great resources to help me prepare for this experience. To mention one, as a senior at MIT, I participated in a small undergraduate seminar in which the participants presented topics to each other. The seminar was led by Prof. James Munkres, a great teacher and writer of mathematics. He encouraged preparing for lectures by practicing with a peer. It was striking how this seminar made much better speakers out of the participants in the course of one semester. His coaching included specific exhortations (“write in advance exactly what will go on the board,” “do not abuse math symbols,” “lecture out loud to yourself,” “project your voice”), which have stayed with me as indispensable sources of confidence.

I find that coming up with a good way to explain an idea is a puzzle comparable to finding a nice little proof, and when done successfully it carries with it a similar intellectual excitement. Recently, a student approached me after class, to ask why \((f \circ g)^{-1} = g^{-1} \circ f^{-1}\). The explanation that I gave her compared the act of putting on socks and shoes to the reverse act of removing them—a vivid illustration that I heard in high school from a teacher. It was very gratifying to see her get it and to hear the student next to her say how this was the “coolest explanation ever.”

The appropriate approach to teaching depends strongly on the kind of audience addressed. When teaching lower- to middle-level courses, I find that conveying intuition is at least as important as mathematical rigor. In addition, the students welcome explanations which connect the new ideas to familiar concepts from previous courses or from everyday experience. For example, I like to compare diagonalizing a bilinear form with the notion of completing the square; in this light, the otherwise peculiar concept of finding an eigenbasis becomes “simply” a systematic way for doing something that the students are familiar with. When teaching students with more mathematical maturity, it is possible to shift the balance towards rigor and towards expanding their mathematical horizons.

In closing, I believe that two of the most important tasks for a teacher are placing the right emphasis on the ideas and demystifying the subject. First, in principle there is no information that can be learned at the classroom which cannot also be learned simply by reading the textbook. However, in choosing the emphasis, be it implicitly through the choice of topics presented or explicitly in the verbal and visual structure of the presentation, the instructor can make the learning much more efficient. Second, students starting a new class are often daunted by the unknown that lies ahead, and it is the job of the teacher to convince them, by speaking about it plainly and in familiar terms, that it is within their reach.