

Teaching Statement for Kimberly A. Roth

Since middle school, I have wanted to teach at some level. At first English seemed the most appealing, until I encountered dissection of literature in high school. After that experience, math felt like a more concrete choice. As an undergraduate, I discovered real joy in the intricacies of abstract math. Also I discovered, while teaching incoming seventh and eighth graders for a summer, that I liked teaching, but did not enjoy disciplining students. Those two discoveries combined led me to graduate school in mathematics and completing my Ph.D.

At the Pennsylvania State University, I taught both a math course for non-science majors and several math courses primarily for second-year engineers. Here at Wheeling Jesuit University, I have taught math courses for math and science majors and math courses for fulfillment of the math requirement. I have also taught one first year seminar at Wheeling Jesuit, which is a course teaching college success strategies and study skills through a topic of the professors choice, in my case music. Each of these types of courses serve a different purpose and, therefore, my teaching philosophy and goals for each type reflect the course's purpose and I will focus on the mathematics courses.

In a math course for non-science majors or for fulfillment of a math requirement, I have three main goals. First, to make math as palatable and comprehensible as possible to this group of students, many of whom are intimidated by mathematics. Second, to occasionally do interesting and fun problems, from real life if possible, to help them believe the math that they learn is useful and to spark their interest. Third, to teach in a manner that emphasizes the thinking process and aids retention of the material. While this is usually a terminal math course and so they do not need the material for future math courses, they should still take some knowledge with them when it is over. One of my tools used to attain these goals is to do frequent in-class problems, which are done by the students working in groups. Usually

the problems are fairly routine examples that reinforce the material lectured, but they also can be fun problems.

In other math courses I have taught, retention and application of the material is key, since most students will go on to use this material in their next courses. Applications of the material are mentioned as much as possible and, when time permits, are covered more thoroughly in class. These courses are also part of the students' early exposure to theory and abstraction. I aid in the digestion of theory by emphasizing its use and aid in becoming familiar with abstraction by assigning what I call "know and show" problems. These problems generally follow the form "If you know this, show that" and can be solved by writing down what you know and how you could do what you need to show, and then substituting the former into the latter. Along with developing the theory in these classes, I also like to point out the connections between the classes and mention future math that is built on this material.

When teaching any level of students I believe it is important to: treat the students with respect, teach at a level the students can understand, motivate them, encourage them to both ask and answer questions, keep them informed of their progress, be available for help, and expect them to think and work both inside and outside of the classroom. Teaching at the level of the students is the most difficult of these goals. On the one hand, it is easy to teach way above your students level and leave them with no capability of grasping the material. On the other hand, it is also possible to teach below the students level and not require them to think, doing them a disservice both now and in future courses. Teaching well is a constant learning process and I hope to continue teaching and learning throughout my career.