

Statement of Teaching Philosophy

Michael P. Knapp

I love to teach. I love giving lectures to my classes. I love answering questions from students and finding new ways to explain difficult concepts to them. I love to meet with students in my office where I can give them individual attention. I am joyful when I see that a student who I expected to do poorly on an exam has done well, and share the disappointment of the student who I had hoped would do very well, but was unable to.

My love of teaching stems from my love of mathematics. I love thinking about mathematics, doing mathematics and learning new mathematics in my research. Math is an intrinsically beautiful subject, and I view teaching as an opportunity to talk about and share it with other people.

Although it may sound trivial at first, my guiding philosophy when teaching is that the purpose of a math course is to learn the principles of mathematics. That is, I believe that math students should learn more than simply rote methods for solving 30 or 40 different types of problems. A successful student should come out of a math course able to apply his knowledge to problems which do not look exactly like those that he has seen before. To this effect, I try as much as possible to teach students not just how to use the mathematical tools they are learning, but also the underlying ideas behind them. For example, when I teach calculus courses, I will stress repeatedly that whenever we want to calculate something, our formulas are obtained by finding better and better approximations and then taking a limit of these approximations to find the exact answer.

Of course, it is necessary to realize that being able to use mathematical formulas to do computations is also extremely important, especially in introductory courses. Therefore, I try to spend a lot of time in these courses doing different types of examples for the students and will even occasionally give them step-by-step instructions for solving particularly important types of problems. I also realize that in these courses there will be topics which would be inappropriate to attempt to fully explain, as a full explanation would be either beyond the scope of the course or possibly too advanced for the students to understand. In these situations I always attempt to give a “hand-waving” explanation, or at least

make sure that the students know that more work needs to be done to fully explain the concept.

One teaching experience at Loyola that I am very proud of was when I taught a topology course last fall. Since I arrived at Loyola, I have said several times that the mathematical sciences department should offer a course in topology, because some knowledge of the subject is vital for any student who will attend graduate school in mathematics. Since we had two seniors last year who were considering further studies in math, I offered to teach topology as a “special topics” course. Since topology had never (to my knowledge) been taught before at Loyola, I needed to build this course from the ground up, from deciding what material to teach to selecting a textbook to deciding how to best convey the material to Loyola students. I found the whole process to be a lot of work, but also to be extremely enjoyable. I was very happy to see that all of the students seemed to enjoy the course even though they found it very challenging. I was also pleased to see that they all felt that I did a good job with the course, as they uniformly gave me the highest possible rating on their course evaluations. I am looking forward to repeating the experience of creating an entirely new course as I prepare to teach another special topics course, “Fibonacci Numbers and Related Topics,” during the Spring 2007 semester.

As alluded to above, I take teaching very seriously and work very hard at this aspect of my job. I am happy to say that this work has yielded excellent results in the classroom. One piece of tangible evidence of these results is in the evaluations of my teaching during my annual performance review. For the 2005-06 academic year, my department chair rated my teaching as outstanding, and during the 2004-05 year, I was rated as exceeding expectations. My abilities as a teacher have also been recognized by my students on their course evaluations. During the 2004-05 academic year, my average rating on student course evaluations was a 3.448 out of a possible 4.0. During the 2005-06 year, it was an even higher 3.686. While one may reasonably debate whether student ratings are an accurate reflection of teaching ability, it is clear that my students feel that I am doing a good job. I was especially honored to find that in a survey of last year’s graduates, three students named me as one of “the three faculty members who had the greatest positive influence on (their) education at Loyola.”

To conclude, I would like to share some comments that my students have made about me. These anonymous comments are taken from student course evaluations. I think that in some ways they say much more about my teaching than I can.

I think Dr. Knapp is a fantastic professor. He was always more than willing to help out with weekly homeworks going over concepts I got stuck on and he was always so happy and excited to help. He is very kind and fair.

- Discrete Methods, Fall 2003

This course was very thoroughly laid out. DR. KNAPP writes notes that are clear and easy to follow. The webwork is convenient and challenging. This class was well done!

- Calculus I, Fall 2004

I liked how Dr. Knapp was always available to discuss the work and would answer emails quickly. He was always trying to help. The review session before each test ... (also helped).

- Linear Algebra, Spring 2005

Professor Knapp was excellent at explaining all the simple as well as difficult fundamentals of the course. It was nice having class with him.

- Calculus I, Fall 2005

Easily the best math prof I have had. (The) course is clear and (he) is more than willing to take time to help struggling students. Great teacher.

- Calculus II, Spring 2006

(This was) the best math class I have taken at Loyola. Topics were interesting, notes were thorough, and (he) made even the more complex topics easy to understand.

- Number Theory, Spring 2006