Teaching Statement

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I have taught since I was in high school. Teaching is fun, and it helps me keep in touch with the society. I enjoy it. It is not just my students who learn from me. I also learn from them. Teaching helps me organize my thoughts and understand the material in a deeper way.

1 Classroom Teaching Experience

At Dickinson College, I have taught as a full time professor for two semesters. I take a full responsibility of the class which include lecture, homework, lab and project. At Rutgers University, I worked as a Teaching Assistant (TA) during regular semesters, and I was an instructor during summer semesters. I have been a TA every semester since second year. As a TA I ran two styles of classes: recitations and workshops. In recitations, my responsibility is to prepare a summarized version of the material, at the same time answering the students' questions, and giving them quizzes at the end of each class. In workshops, I spend part of the period go over homework questions, then help the students as they solve workshop problems in groups. Workshop problems are designed to be more challenging than homework problems, and while working on them the students learn to talk to each other about mathematics.

Lower level: Pre-calculus, First Year Calculus for biology and non-science majors, First Year Calculus for science and engineering majors, Elementary Statistics for non-science majors.

Many students in these classes are fresh from high school. Many are not well prepared for college mathematics yet. Some of them are not very strong with algebra and basic trigonometry. I go over the basics during the first class, and spend extra care when I show them the calculations. I encourage them to spend extra time outside of class doing problems by giving them extra credit problems.

Middle level: Multivariable Calculus, Differential Equations

The students in these classes are generally already good at calculations. For Multivariable Calculus, when I present new material I always compare it with single variable calculus, so that they can hang on to the things they are already familiar with. In Differential Equations, many of them never saw linear algebra before. I went over it by giving simple examples and showing all calculations clearly. It is less work to teach students in the middle level classes because they are mathematically more mature than entering students. Whenever the instructor gave out review problems, I set up a review session to help them out.

Upper level: Linear Programming, Numerical Analysis, Graph Theory, Number Theory

I was an instructor for these four classes during summer 2006, summer 2007, summer 2008 and fall 2008 respectively. I was very happy to teach these two classes since I got paid to teach subjects that I like, and learn some new material in the process. As an instructor, I have all the freedom to do what I think will help students learn best. One thing I did was to reward students who came to class by giving attendance credits. Lectures are based on examples. I set aside about 20 minutes at the end of the lecture to let them do the practice problems to emphasis what they have learned that day. Also this gives me a chance to talk to them and assess how well they understood. My students sometimes complained that I gave too much homework. But they appreciate that I am always available to answer their questions.

2 Main philosophy- thorough preparation

I put a lot of effort and thought into preparing for a lecture. I know that if I mess it up during the lecture I will have no chance to recover since there is not much time. It is important to organize the ideas so that they lead into each other in a way that is easy to follow. The idea has to be developed step by step. For example: the first question in the Calculus II class is "what is the value of $1 + \frac{1}{2} + \frac{1}{3} + ...$?". This helps them think a bit before the integral test and p-test come to them. I value study outside the class as much as inside the class. As a shy person myself, I try to let students know that I am there to help and I encourage them to ask for help. It is easier to learn by talking than reading the book. I also hold a review session to make it easier for them during the exam period.

I had a lot of help from my teachers before I came to graduate school. Teaching is an important step. I am happy to pass this on to my students. I understand I and my students are not perfect. However I try to be their best teacher. For good students, I talk to them and show my admiration to them. If they are mathematic majors, I try to talk them into learning more mathematic. For weak students, I sit with them and help them solve the problem step by step. I make a set of exercises to help them learn some important basics that they missed. Calculations are important for weak students. I want every one of my students to have a good time learning mathematics with

me.

3 Technology In Teaching

- **Class Web site** As the instructor for Numerical Analysis, Graph Theory, Number Theory and Statistics, I had to build a website for the class. The information available on the website included homework assignments, Maple code, practice problems, review problems, and worked solutions.

- **Maple programming** At Rutgers University, students of Multivariable Calculus and Differential Equations are assigned computer programming homework. During two semesters, I was responsible for everything involving the computer program Maple. This included spending the first class going over the basics of Maple in the computer lab, preparing 5 assignments that required students to use Maple, and preparing their solution keys. For the Numerical Analysis and Number Theory class that I taught, I wrote Maple code that students could download from the web site to help them do numerical computations for their homework assignments.

4 Awards

- Head TA for Multivariable Calculus, Spring 2007.
- Teaching Excellence Award, Fall 2006.

5 Undergraduate involvement beyond teaching

I have been a graduate student mentor in the Direct Reading Program (DRP) program at Rutgers for three semesters. The undergraduates who attend this program have special interests and want to learn extra material that is not a usually offered in their standard classes. We talk and read the book together. The undergraduates benefit from having someone to talk to and share their enthusiasm as they read the book of their choice. I benefit from the program by studying a book I have never read. Once we read the book called "Hypercomplex Numbers: An Elementary Introduction to Algebras" by I.L. Kantor, A.S. Solodovnikov, and Abe Shenitzer. I liked it so much that I read it twice. Another time we read the famous number theory book by Tom M. Apostol. I enjoy being around undergraduate students who are excited to learn mathematics. I would be very happy to help with coaching undergraduate teams for mathematics competitions.