Teaching Statement for Brian K. Miceli

Teaching Philosophy.

During my last two years as an undergraduate at Cal Poly, San Luis Obispo I worked as a workshop facilitator, where I led organized discussions of ten to thirty students for lower division math courses. My experiences there sparked my passion for teaching, and since then I have centered my life and education around the goal of becoming a university professor. Over the past 6 years I have worked diligently to attain this goal, honing my skills as a teacher and a leader in the classroom. Aside from being a workshop facilitator, I have held positions as a teaching assistant at UC, San Diego, and as an adjunct professor at a local junior college. As a result of my hard work, dedication, and skill, this year the mathematics department recognized me as one of their best teachers and offered me the position of Head TA. My responsibilities include the assignment, mentoring, and training of all beginning and current math department teaching assistants.

In the pursuit of the mastery of any craft, the greatest advances are due not just to experience, but to reflection upon those experiences. One must work at being a good teacher, so in addition to my years in the classroom as an instructor, I have spent a lot of time trying to incorporate into my own teaching the lessons provided by the professors who have had such an immeasurable impact on my life. These teachers are my role models, and I have actively sought to discover and develop in myself the techniques and qualities they possessed that made their classes such fruitful experiences. The tenets of my current teaching philosophy reflect this:

1. Lectures will be engaging and relevant to the students. The material in the text needs to be covered, but interesting examples and applications must be given. The students must feel that they have the right to express themselves in the classroom by requesting clarification or asking the professor to slow down. Students need to feel that they get something more out of lecture than they do by just going through the textbook on their own.

2. Homework will be given regularly, if not daily, and it will be graded. Exercises should consist of both basic problems and harder ones, but always given with the purpose of learning something valuable.

3. Exams will be difficult, but fair, and the expectations for the students will always be clear. Final exams will be cumulative, and all exams will emphasize the key points of the course. Exams will be given two to three times per course to keep the students up to date on the material being presented, and the students will need to put in many hours of their own time as well as work together with their peers in order to succeed.

4. Mathematics will not be isolated from the English language. Thusly, communication skills, both written and oral, will be emphasized in the classroom, and students will be expected to turn in clear and presentable work.

5. Office hours should be useful and informative. The professor should be available to students for both upper division mathematics courses and lower division service courses.
Students should feel that they are able to ask questions and voice concerns freely; in turn, they should get thoughtful and respectful responses.

6. Answers to the problems should not always be the litmus test by which students are measured. Many times, and this is especially true of mathematics, the journey of solving a problem - the method employed and the thought process involved - is equally if not more important than actually solving the problem itself.

I am looking forward to a very rewarding career as a university professor. I continue to evolve my teaching philosophy, and I plan to do so for the entirety of my career. Although I have worked very hard these last few years to be the best teacher I can be, I know that I can never relax my efforts to improve my abilities as a teacher. I always take a great deal of pride in the level of care that I put in to each course I teach and it means a lot to me when students tell me that I have done a good job.
Course Development.

As an undergraduate I found the seminars in which I was involved to be some of the most educational and rewarding classes I took, and I would like my students to have the opportunity to experience what I did. To that end I would like to develop over time some new undergraduate modeling and problem-solving courses which would emphasize oral and written presentations of the students’ solutions to problems. These courses would offer the students an opportunity to use what they have learned in both their support courses and courses required within the mathematics major. As an undergraduate I was active in the both the Putnam and mathematical modeling competitions and would enjoy helping those on your faculty who participate in those areas to prepare the students for these unique experiences. I also spent three years as an undergraduate using mathematics in a community service project and found it to be an extremely rewarding experience.

- **Mathematical Modeling:** Modeling offers an excellent opportunity for mathematicians of all levels to apply their knowledge to real life problems, work with others in a problem solving setting, and improve their communication skills. It also provides an opportunity to use computer simulation as a means of mathematical exploration and experimentation. I would like to organize a class which emphasizes problems in modeling and prepares the students to participate successfully in the annual COMAP Mathematical Contest in Modeling.

- **Community Service Projects:** I would also like to seek out some appropriate community service projects which would not only give the students a chance to utilize their mathematical skills to address social, health, or environmental problems, but also demonstrate to the general public the value of mathematicians as problem solvers. In the case of ongoing projects, classes could be associated with the projects where discussions would take place and if the work is sufficient, academic credit could be given.

- **Senior Seminar:** Many times, the most difficult part of solving a mathematical problem is writing or presenting a clear solution. I would like to start a senior seminar class in which students who have taken most of their required undergraduate major courses can work on some interesting problems which utilize that previously gained knowledge. For this course, the grade would be based mostly on a clear problem presentations and technically sound solutions. This would be a excellent way for students to prepare for both work in industry, as well as preparing undergraduates for the rigors of graduate school education.

- **Problem Solving Seminar:** If your institution does not already have such a course, I would be interested in developing a seminar in which problem solving and communication skills would be emphasized. This class would be offered in the fall and members of this seminar would be expected to participate in the annual William Lowell Putnam Competition.