TEACHING STATEMENT

Effective teaching is the part of my professional life that I enjoy the most and to which I dedicate most of my time. I view it as a responsibility, opportunity, and privilege to be able to teach. It is a responsibility because I must solidify my understanding of the subject matter and adhere to the established standards and principles that make up mathematics and statistics. I always read catalog descriptions and departmental standards and see to it that all topics mentioned for a given class are covered. It is an opportunity because I am in a position to be able to stand upon the established standards and enhance the presentation and application of them by introducing cutting edge research and technology to the next generation of academicians and practitioners. It is a privilege because I am in a unique position to help individuals from all walks of life achieve their goals, while engaging in an activity that I love. It is an anomaly when there is a week that I don’t need more space than my office for office hours. I spend my time during the academic year preparing for lectures, helping students during office hours, preparing and grading computer based and hand written homework, quizzes and midterms, developing supplementary learning aides, and maintaining my Blackboard and Desire2Learn class sites. I take these responsibilities seriously and devote a considerable amount of time to each, and have a reputation among students for having high standards. My teaching evaluations (available upon request) and the success of my former students speak for themselves.

In what follows, first I discuss my pedagogy, growth and development in my lower division classes. Then I discuss ways I have actively sought to improve myself as a teacher.

I. Lower Division Classes

I am of the strong conviction that frequency of assessment should be inversely proportional to the maturity and experience of a student. Thus, a common practice I have developed over the years has been frequent in-class quizzes in addition to weekly handwritten homework assignments, midterms, and a final. All of the above are graded by myself and typically returned within a week for immediate feedback. I purposefully hold my office hours at times that students are most likely to show up, such as before quizzes. The lower division classes I have taught at CSU Long Beach are Stat 108 Statistics for Everyday Life, Math 119A: Survey of Calculus I, Math 122 Calculus I, Math 123 Calculus II, and Math 224 Calculus III. In what follows I highlight my pedagogical approach in the Calculus sequence and demonstrate my growth as an instructor.
CALCULUS: MATH 119A, 122, 123, 224

As a statistician with a solid background in mathematics, I have enjoyed teaching courses in the main calculus sequence: Math 122, 123, 224. My goal, which permeates all that I do and my pedagogical philosophy in these classes, is to produce students that (1) possess a thorough capability to perform fundamental calculations and operations, (2) discover a sense of understanding for the reasoning and motivation behind these concepts (3) are able to retain this information beyond the current semester. Though much of the burden for these goals lies with the students, my system leaves them with no excuse. It’s all about student empowerment and ownership. I believe I am most successful when I create an environment in which every student feels comfortable exploring what they are learning, feels safe enough to make mistakes, and is confident that we can work together to attain deep understanding; understanding that lasts well beyond the final exam. In addition to the usual pedagogical tools, which I will detail below, in each of these classes I frequently utilize the activity time to review basic concepts and procedures. For example, I had a half hour study session on the chain rule (Calculus I topic that is fundamental for success in both Calculus II and III) in a semester when I taught Calculus II. Also, I incorporate group work and competitive games based on the material, which encourages students to explain concepts and procedures to their peers and to myself, both in small group settings, as well as in front of the class. This has especially been meaningful for several of my students that have decided to become math majors due to their enjoyment of this confidence-building problem solving process.

The traditional tools of assessment I use in all of my Calculus classes are weekly graded homework assignments, weekly quizzes, two midterms, and a final exam. Based on informal discussion, I have gathered that I far exceed what is typical for weekly assessment by my colleagues by grading both homework and quizzes. It is a heavy workload but in my estimation it is necessary. I integrate all four tools of assessment in the following way. I assign a good amount of homework problems per week, but ask them to only turn in a carefully selected subset that will direct their attention to learning core topics and methods. Then I let them know that quizzes will be taken straight from the assigned but not turned in homework problems, and midterms will have a similar flavor to the homework and examples in my lectures. In addition, I do believe that occasionally there is a place for exam questions that test “deeper learning”.

I would like to note that as is the case for most of us, when I was starting out I chose teaching assignments that minimized prep time and were most convenient to me. However, in Fall 2009 I had such an amazing rapport with my Math 122 Calculus I class (students Michael Moval, Christina Salazar, Christopher Sanchez and Robbie Zdjelar decided to switch their major/minor in math as a result of that experience), I decided to teach through the Calculus sequence consecutively, putting my students needs above my comfort. That meant me taking on a new prep in the very semester that I went up for tenure, which I was more than happy to do for the benefit of my students.

Finally, I have found that the unique perspective I bring to the table based on my relative proximity to the age of my students, as well as my cultural background, has
afforded me an ability to connect with and relate to my students that has helped the classroom dynamic. Although I was initially reticent to “be myself” as opposed to fall into a way of communicating that is expected and standard for a mathematics professor, I have found that the message gets across more clearly when I am relaxed, students are more engaged, and “space out” less.

II. Efforts to Improve

I have made a consistent effort to utilize outside sources to assist me in the enhancement of my pedagogical method. First of all, I communicate with established math faculty, learning from their approaches, and getting inspiration from handouts they have prepared. In addition, I have no problem getting insight from faculty that is junior to me. I have had frequent discussions with them concerning teaching, and have implemented some of their ideas, such as conducting a mid semester informal survey in a Math 119A class I was struggling to connect with. I have also tried to implement the recommendations of those who have observed me over the years. Moreover, I always make a point to attend any seminars/discussions on math or statistics education at conferences or colloquia I attend. These stimulate thought for unconventional but effective approaches for overcoming the learning deficits our students face. In addition, from August 2006 to July 2008 I took part in the American Statistical Associations’ statistics education mentoring program. I was connected with Dr. Rob Gould of Statistical Education at UCLA. Discussion with and direction from Dr. Gould were quite beneficial for me. I believe that the implementation of what I have learned has led to the improvement of my lectures and evaluation methods.

Within the past year I have embarked on a new course of research that was motivated by separate discussions with faculty and students. Any sort of mathematical modeling of real world processes involves simplifications and assumptions; however some assumptions are often used without discernment. I have co-authored one, and am in the process of authoring another paper addressing departures from standard assumptions in regression analysis. I have already brought our findings to my classroom and see the improvement in understanding it generates. Questioning assumptions helps students answer the “why” questions, and bring about true maturity in student thought. Even at the introductory level of algebra, students will be inspired to know how and why what they are learning is useful.

Lastly, through my involvement with the Upward Bound Math Science program at CSU Long Beach, I was able to become familiar with the high school education received by the typical low income and first generation student in the southern California area. This gave me keen insight into the deficiencies I would see in the freshmen I had in my classes. This experience informs my approach, and I am constantly looking for ways to address gaps in my students understanding of foundational concepts at all levels. I often use the metaphor that my goal is to fill in the holes in the “Swiss cheese” of their mathematical background.
In conclusion, it is often quipped “Those who can do; those who can’t teach”. With a background in statistics, and experience consulting, I could “do”, but my passion is teaching. The privilege of helping students get closer to their dreams is what I love; and seeing the ripple effects this can have for their families and communities allows me to be part of something bigger. Rigorous instruction in mathematics is the tool that can achieve this, and I am looking forward to continuing a career where I will be able to teach from basic algebra up to masters level statistics.