

Teaching Statement

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October 25, 2014

I find it immensely satisfying to share my knowledge of statistics with students, and I see teaching as a fulfilling complement to my research work. I take my teaching very seriously and use it as an opportunity to communicate my own enthusiasm for statistics to students. I have been told by students that my teaching has inspired and motivated them to pursue statistics and influenced their views of statistics in a positive way; as a result, I take great pride in my teaching ability.

When structuring my lectures, I try to emphasize a few concrete applications to give students something tangible to attach abstract mathematical ideas to. I believe that this can be done, to some extent, at all levels of mathematical abstraction. Most applications I have found in textbooks focus on boring-but-practical examples. Rather than take this approach, I attempt to construct examples which engage the imagination of the students. Given the surge of interest in “big-data” problems, it isn’t hard to find amazing applications of statistical ideas capable of capturing the attention of even the most jaded student. To this end, I ensure that my examples are as diverse as possible so that I maximize the the number of students who find at least one of the applications interesting. I do not feel, however, that a focus on applications should be used as an excuse to lower the level of mathematical rigor; rather, I feel that once meaningful applications are illustrated I have a *justification* for emphasizing the mathematics, assuming the context is appropriate.

I view motivating students to be as essential a part of my job as an instructor as actual instruction. My philosophy is that students learn best by actually *doing* rather than being shown how to do. For applied classes, this involves homework and projects devoted to doing data analysis, while for more theoretical courses this involves a healthy number of problem sets.

I have experience instructing students at both the undergraduate and graduate levels. At the graduate level, I served as the instructor of a summer program to prepare students to retake their qualifying examinations after failing their first attempt; this required covering core topics in graduate statistical inference, regression, and design of experiments. As an instructor at the undergraduate level, I have experience teaching introductory probability theory.

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I have also acted as a teaching assistant for courses at the undergraduate and graduate levels. At the undergraduate level, I have assisted in the implementation of courses ranging from introductory statistics courses to advanced undergraduate topics. Of special note is my experience assisting with the implementation of actuarial science courses where several students have attributed their passing of the Society of Actuaries exams P and FM to my help.

My primary goal when teaching is to convey a conceptual understanding of the problems discussed. When students come to me for help during office hours, I attempt to lead them to the answer through questions rather than directly telling the student how to approach the problem. To do this I use a Socratic method I learned from the classic text *How to Show It* by George Pólya. I teach in a manner which recognizes that within a given class there are different types of students. For students for whom statistics is a major focus, this helps provide a strong foundational support for understanding advanced concepts; for students who are taking statistics courses as a supplement for their major, this approach at least provides them with a sense of what statistics is all about when they interact with data.

I look forward to continuing to work with students and increase the overall level of statistical awareness. More than ever, it is essential that students understand statistical thinking, and I believe that poor understanding of statistical principles on the part of the general population has the potential to lead to negative consequences. I view it as a personal responsibility to do my part in this regard.