Teaching Statement

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My approach to teaching has been shaped firstly through observation of the teaching styles of my professors and secondly through my own experience instructing both undergraduate courses and laboratory sessions for graduate students from diverse disciplines. The following cornerstones lay the foundation of my teaching philosophy: motivating quantitative methodology by real life problems, explaining quantitative details effectively and succinctly, and arming the students with necessary tools that can be used outside of the classroom.

In many universities, statistics is the primary technical course taken by undergraduate students in social science departments. It is common for these students to regard statistics as solely based on tedious calculations and derivations, with no real life applications. Therefore, I find it imperative to motivate statistical concepts through real life problems and fascinating examples. For instance, students in my *Introduction to Statistics* class at North Carolina State University (NCSU) learned about the concept of confidence intervals for the sample proportion by physically randomly sampling from M&M's candy packets. In particular, each student computed the confidence interval for the proportion of blue candies based on his/her sample. Further, we discussed the concept by aggregating the confidence intervals calculated by all of the students to check for intervals that contained the true expected proportion of blue candies. Similarly, I used a dataset on schizophrenia drug failure times to motivate the concept of survival data analysis when teaching laboratory sessions for a graduate-level introductory biostatistics course at the Johns Hopkins University (JHU).

When teaching, I draw on my experience in lecturing to very diverse student audiences including doctors, chemists, food scientists and public health professionals to name a few. I have learned that if I want to clearly and effectively transfer practical knowledge to students, I must adapt my teaching strategy to account for their background and training. For instance, when teaching a Biostatistics course to medical professionals, I found that many were approaching learning via memorization. To remedy this, and encourage students to internalize rather than memorize statistical concepts, I guided students through numerous examples, while emphasizing the thinking process with the goal of teaching ideas rather than a list of facts. In particular, to help them grasp the intuition behind probability calculations for normally distributed random variables, I employed graphics to explain how to approach probabilities in the terms of areas under the density curve. In addition, I used web based applets to teach the idea of sampling distributions for the sample mean more effectively. To help students struggling with the pace of the class, after introducing the problem at hand, I would assign a similar problem to tackle independently. For those students that needed additional assistance, I would give useful hints or helpful directions.

Even the best students may not succeed in a course, if they do not know how their performance will be assessed. When teaching an introductory statistics course at NCSU, I spent a part of the first lecture explaining the main goals of the course and the assessment tools that would be utilized. I often used worksheets in class to ensure that my students were following the material. They received computer generated homework assignments to practice the examples taught in class, as well as midterm exams to assess their performance. At the end of the semester, the overall learning of the students was evaluated by a final exam.

I find that the most important assessment of the success of a course is the ability of the students to apply the material learned outside of the classroom. By motivating the statistical concepts with examples that are most relevant to the students in my courses, and by taking them through the thinking process of the statistical investigators, my goal is to arm them with the statistical tools that can be used in the future when facing real world problems.