

2 Teaching Statement

Since I joined FIU, I have taught a wide range of courses, from elementary *Statistics I and II* for a variety of non-Statistics majored undergraduate students, to *Design of Experiments* and *Nonparametric Statistics* for upper level Statistics majors, and to *Biostatistics* and *High Dimensional Data Analysis* for master students in Statistics and master/PhD students outside of the department. In the first three years I taught four courses every academic year, and five ever since. These extensive experiences have been constantly evolving my teaching philosophy. I sort out some highlights of it as follows.

Diverse teaching strategies. My teaching philosophy and approaches are divided into three categories when I face three different groups of students. For non-Statistics majored undergraduate students, I make the instructions as straightforward and direct as possible, and utilize many real-life data examples in class in order to connect students' everyday life to Statistics. I enjoy the most when students were no longer afraid of doing math and found Statistics interesting. When facing non-statistics majored graduate students, who are eager to learn simply how to implement the statistical methods that are essential for their own research, I, in contrast, focus on teaching them why these methods work, because I understand what is more important, thanks to my collaborative research experience with field scientists and researchers. Nothing is more than rewarding when students finally understand the fundamental ideas, and feel independent and confident on the statistical aspects for their research. When teaching undergraduate or master students in Statistics, through logically and rigorously organized course materials, I emphasize how the methodologies have been developed, just like how research is conducted step by step. So when students ask questions what if, and that is exactly what will be discussed next, I know they are on the way to become an expert on the topic. The most challenging situation teaching at FIU is when a class is taught cross-sectionally, such as *Design of Experiments*, and when I have to face two or even three groups of students in the same classroom. While balancing between different teaching approaches, I find hands-on group project is the most effective course activity, where students with different background and learning objectives work together and learn from each other. I was often surprised by what a group of such students can do in written and oral presentations. As a teacher, I really appreciate when active learning meets diversity.

Teaching with technology. Technology is always part of my teaching given that we are living in a data and technology era. Statistical education is evolving with technology all the time in a fast pace, while taking advantage of its convenience and preparing students to be data citizens. Even in the very first course, using statistical software is involved in course activities throughout the semester. Technology does not diminish the classic way of learning Statistics, but promotes

its beauty in a more efficient way. I have also redesigned online sections of *Statistics for Business and Economics*, *Statistics I*, and *Statistics II*, and developed a complete series of video lectures and group discussion activities, enhanced with advanced technologies available at FIU Online. While enjoying this exciting experience, I will always target on how technology can help students learn new ideas rather than simply becoming technology users. I also plan to explore the use of technology in hybrid courses in the future.

Curriculum development. *High Dimensional Data Analysis* is a new course proposed with my colleagues, Dr. Golam Kibria and Dr. Florence George, for master students in Statistics. It is closely related to my own research. When I taught it for the first time in Spring 2015, I was proud to share my appreciation of modern statistical learning theory, especially some of my research, with the students. It is the first course in the department that introduces modern computational Statistics for large-scale data. In the future, I plan to develop another new course on Bayesian Statistics, also one of my research topics, as requested by many students. Such new courses are not only necessary complement to our current curriculum, but will also closely interact with my own research.

Mentoring students. As an extension of *High Dimensional Data Analysis*, I worked with my first master student, Jobany Heredia Rico, on Logic regression modeling. He successfully defended his thesis in Spring 2016. I am thrilled to see him learning and growing so much through his thesis work. We are currently investigating more on this topic and preparing a manuscript for publication. I will be more than willing to have more master students in the future. In addition to serving in Statistics master thesis committee for six students including Jobany, I have had chances to serve in PhD dissertation committees for sixteen students from eight different departments across FIU, due to my interdisciplinary collaborating experience. I got involved in their graduate studies in various depth. Some students became my co-authors for publications, and some, under the supervision of their major professors, became joint research team members for grant proposals. While making my effort to train these students to be capable of doing the quantitative part of their research, I found that serving in these committees is a good way to combine teaching and collaborative research, which eventually stimulates my own independent research.