Teaching Statement

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Teaching Philosophy Throughout my graduate career, I have had ample exposure ~~to~~ and opportunity to develop teaching skills. I was a teaching assistant (TA) for every semester except one and tutored students outside the classroom. My overall goal in teaching is to help others learn. Grades are secondary to the acquired knowledge in the classroom as well as acquiring skills to answer future questions without an instructor.

I have prepared hour-long lab sessions, held office hours, and written and prepared examinations and quizzes in moderately-sized (N=60) classes such as Methods in Biostatistics (N=60) and large (N=500) classes such as Statistical Methods in Public Health. The most directly applicable teaching has been co-instructing an Introduction to R class, a 5 full-day course in the Winter and Summer Institute sessions and instructing a small-group workshop of clinicians and researchers on how to program in R. At the ENAR 2015 meeting, another graduate student and I prepared and delivered a~~nd~~ 1 hour, 45-minute tutorial on brain imaging for statisticians. We developed the course material, presentation slides, and code for distribution.

Throughout these courses I have found that **live feedback** and working with **data as soon as possible** lead to the best outcomes. Although students may not ask many questions during lecture, prompting and pushing this discussion after presenting a concept crucial to converting the information to knowledge. ~~In an applied setting, without a data set to apply a method, test its assumptions, and interpret the results of the output, much of~~ the information ~~is~~ abstract ~~when it needs to be concrete~~.

Teaching Style and Tools In applied classes, I have found that going through an analysis script from scratch can convey a difficult concept to teach: the decision making process of analysis. Using prepared scripts and analyses, I also show how to weave the analysis methods, decisions, and results into a comprehensive narrative, usually resulting in a report. One thing I stress continuously to students is to justify all decisions and choices they will make in an analysis. These decisions may be straightforward, such as why a analytic method was chosen, or more subtle, such as ~~putting~~ a compelling ~~figure~~ caption ~~which~~ justifies the presence of ~~that figure~~. I also stress that analysis must be reproducible, for scientific integrity and the ability to re-run an analysis with slight changes. During these interactive sessions, I commonly ~~will~~ record my screen and publish the videos on the web, on sites such as YouTube, for students to have a resource after class as well as create a digital library of work for future classes.

In methodological classes, I find that simulations can illustrate the results of a proof well, such as the asymptotic behavior of an estimator or the coverage of ~~an uncertainty estimate~~. I have also found that writing proofs and steps explicitly versus using pre~~-made~~ slides allows students to see the thought process of ~~a~~ proof. Writing also provides a natural tempo to the class so that students have more opportunity to digest the material and ask questions if the delivery needs to be clarified.

Evaluation Clarity is important when assessing student performance in class. Using checklists and rubrics help students understand the criteria required for an assignment. Having the professor or TA grade the coursework is important for assessment. However, I have ~~found that when students grade assignments of other students in the class, they have a better understanding of the material and provide better feedback~~.

Organization Overall, class organization is integral to a positive teaching experience for students. More importantly, constantly iterating what the **main goals** are and specifically **why** the tasks are required is essential. Without conveying the purpose, the knowledge cannot fit into their greater understanding of the field.

Courses I would like to teach. Given my experience and expertise in teaching and research, I believe the classes I would be best suited to teach would include: Applied Statistics, Computational Statistics, Data Science, Statistical Consulting, Statistical Methods, and R Programming.