TEACHING STATEMENT

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Teaching is an important part of academic life. I have immensely benefited from my teachers and I am committed to carry on this tradition. I believe a teacher should be able to motivate the main ideas, address questions like why learning a concept might be useful and how things fit in the big picture. This approach is highly appreciated at all levels. Additionally, at a more advanced level it is important for the students to be careful with the technical details. I believe a teacher should be able to do both and adapt oneself depending on the level of the course and interests of the students. In particular, keeping the motivation of the students high is crucial. Being organized, patient, and trying to think from a student's perspective are few other important qualities that would make a great teacher.

During my last four years as a graduate student at Stanford Statistics department I was a teaching assistant (TA) for six courses of varied level of sophistication. Being a TA of courses of varied technical difficulty level has helped me to understand how to convey the same materials to students at different academic maturity. My TA duties included holding weekly office hours, grading homework, writing solutions for homework problems, suggesting problems for midterm and final exams, grading the exams and as well as taking weekly sections. These duties have certainly enhanced my teaching skills. In particular, I have found teaching in the weekly sections an immensely useful platform to experiment, learn, and improvise different styles of teaching.

During Spring 2010, I was a TA for a masters level probability course. The topics consisted of Gaussian processes, renewal theory, martingales, and Brownian motion. My duties included holding weekly office hours, grading the weekly homework sets, writing the solutions to the homework problems, and grading the midterm and the final exams. When I started interacting with the students during my office hours, I soon realized that it is not easy to provide a lucid explanation even if I have a good command over the materials. I noted that an explanation somewhere between very precise and slightly heuristic works better for the students. This balance between the precise and heuristic explanations also needs to be altered according to the students. Some advanced students appreciate more precise explanations, whereas others prefer less precise explanations. During this TA work I also learned how to grade uniformly for all the students. Overall, this was an excellent introduction to the idea of teaching and considering teaching as an important skill to develop.

In Spring 2011, I was a TA for an advanced level graduate probability course: continuous time stochastic processes, continuous time martingales and Markov chains, and Brownian motion. I realized advanced courses also help in improving my own understanding of concepts. During this quarter I also had the opportunity to suggest a problem for the final exam. This was a completely new experience to me. I learned how to select and present the question to the students such that it is neither too difficult nor too easy for them. It is worth considering problems that students can build from ideas discussed in class and also face small challenges to address situations that is different from class. Some of the students were able to answer my question and most of them could write ideas or partially solve it.

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In Fall 2011, I served as TA to another graduate level probability course. This course was intended for the first year graduate students, and it covered measure theory, independence, weak and strong laws of large numbers, weak convergence, characteristic functions, central limit theorems. This time my role included holding weekly office hours, writing solutions to the homework problems and grading midterm and final exams. This course greatly helped in improving my skills from the previous courses and a combined experience of these three courses provided a good setting to experience a real classroom teaching in the next course.

During Fall 2012, although I was a TA for the same course but, this time my duties included holding weekly one hour section. This opportunity to hold the section helped to improve my teaching skill in several ways. It gave an important lesson about the time management during the classes: Often due to some unavoidable circumstances it is not possible to cover the whole material as planned. So it is better to identify important parts of the material beforehand so that the students get maximum benefits out if it. I also learned that to be a good teacher one should be able to do a good board work. It requires previous planning about what to write and where to write on the board. Another important point is to keep a good interaction with students during the whole lecture, so as to understand whether the majority of them are understanding the material. It also helps in keeping the attention of the class. I believe all the experiences that I have gathered while teaching the section for this graduate probability course will help in me in teaching a class in future. I have identified a few techniques like exercising an informal midterm teaching evaluation with qualitative feedback can help recognize strengths and weaknesses.

In Winter 2012, I was a TA in another graduate probability course. This time the course covered conditional expectations, discrete time martingales, and Markov chains on countable state space. I also suggested a problem for the end term this time. By this time, I was much more confident in my role. I believe my experience in all of these courses and have greatly improved my teaching skills, in caring to understand students' difficulties, and striving to appropriately address them.

During Summer 2013, I was a TA for an undergraduate probability course, covering discrete and continuous probability spaces, random variables and their expectations, independence, conditional probability, law of large numbers, central limit theorem. This was my first experience with an undergraduate level course with students coming from diverse background. In my earlier assignments as a TA I learned how to explain a material in precise manner, and this assignment taught me to explain the similar materials in a less precise manner, focusing on the intuition more. It is also important to explain with examples, in particular and if possible real life examples. This course was extremely useful to understand the dynamics of undergraduate teaching. I believe I can build on my learnings from this course when I teach similar courses in future.

I would be very interested to teach graduate or undergraduate level applied probability, probability theory, statistics, linear algebra, undergraduate level calculus, and graduate level real and complex analysis. This list is not exhaustive and certain other courses like differential equation, stochastic calculus etc would be equally appealing. If I have an opportunity, I would be glad to teach some special topic courses as well.

I find the idea that a student will be benefited in future from my teaching in whichever career he/she chooses immensely satisfying. This thought will continue to motivate me to be a better teacher every day.