Statement of Teaching Philosophy
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My teaching experience began when I was an undergraduate at the University of Oslo and was assigned to facilitate recitation sessions in calculus and discrete mathematics. I discovered that I really enjoyed explaining mathematics and interacting with a diverse population of students. In addition, I realized that a great way to learn is through teaching because it gave me such a deep insight into the material. As a GTA at the University of Arizona I obtained a wide array of experiences teaching a variety of introductory courses, and in the fall semester of 2009, I was recognized with the Outstanding Graduate Teaching Assistant Award. As an instructor at the University of Arizona, I have appreciated the opportunity to develop and teach new courses and interact with undergraduate and graduate teaching assistants through my role as a supervisor. I have taught 14 different classes at the University of Arizona, ranging from freshman courses to a graduate course. Along with teaching, I have also attended educational conferences, where I have submitted abstracts and given talks. This year, I created and presented problem sets suitable for high school students at the Mathematics Educator Appreciation Day Conference in Tucson to the high school teaching community. Since fall 2013, I have organized the Mathematics Instruction Colloquium, where we have talks on the teaching of mathematics as well as reading groups on the scholarship of teaching and learning. In addition, I have enjoyed teaching and coordinating instructors in the New Start Summer program; a bridge program assisting students in making a smooth transition from high school to college. When I teach, my overall goal is to motivate the students to be curious about mathematics. I want to convey that mathematics is a tool that can be used to approach both important scientific questions and many everyday situations. From my experience teaching students with varying mathematical interests and backgrounds, understanding how to adapt the methods and expectations to the level and type of class is a key to achieving these goals.

An important role of an instructor is to teach the students how to learn. As a new graduate teaching assistant, I thought that showing the students how to solve every single type of problems would help them to learn. I later understood that the students attained confidence from figuring out the solution themselves instead of having me always present it to them. Instead of having me always working out the solutions to the problems, I sometimes have the students work out the problems on the board. I feel it is important to teach students to be independent, confident, and self-sufficient. I strive for the students to develop conceptual understanding and techniques that can be applied to other parts of mathematics and for them to understand the underlying connections. Learning problem solving in mathematics is done by first solving easier problems that provide insight and technique, and then to move onto gradually solving harder problems. I tell my students that they will learn most from the problems that initially are difficult, and to not give up until finding a solution. To fully learn mathematics, the students need to construct their own knowledge that builds upon their preexisting knowledge. I believe that by merely telling the students the formulas and procedures to use, the students will not attain much knowledge or understanding. In an idealized classroom, the instructor should facilitate a learning environment and provide assignments where students can explore, reflect, and work with other students to learn.

When I teach, my emphasis is on understanding and solving problems rather than memorizing. I feel a classroom environment should be vibrant and engaging, with plenty of active student participation. I encourage student involvement, and incorporate discussions

whenever possible, asking the students to provide the mathematical reasoning and logic behind steps in proofs, theorems and problems. In a typical class period, I will introduce a theoretical concept or formula and work through examples on the board to show the students how to apply the material. But knowing that it is not enough for students to merely watch the instructor, I immediately assign more problems for the students to work on and I encourage them to discuss the problems with their classmates. Then I ask students to share their results on the board, enabling me to observe their thought processes in action and offering further instruction when necessary. I observe that students are more motivated when they actually get to show their own work openly in class. I also encourage my students to share different approaches to problems in class. For example, in my discrete mathematics class, students sometimes have different approaches to a mathematical proof, and I allow students to show the class their way, which further stimulate critical thinking and discussion.

I feel it is important that an instructor is approachable and respectful. I promptly respond to my student's emails and I encourage my students to visit me during office hours, where they can receive one- on- one, personal guidance on homework or extra explanations. Often the students come up to me after class to discuss problems or course material, and I find that I really enjoy those discussions. Then I also get to know my students and their particular knowledge and level. I enjoy seeing students succeed both in the class and also professionally in internships, or other job opportunities, and have provided recommendation letters for many students.

A junior level course that I have developed is a class called Statistics for Teaching. I use a combination of online slides that I create and the white board, and I strive to incorporate technology into my teaching. Sometimes, I will show my students a video clip to illustrate the material. For example, when I was teaching conditional probability, I showed my students a video clip illustrating the Monty Hall problem. As an assignment, they were asked to simulate the Monty Hall problem using the statistical software package, "**R**". When I introduced the sampling distribution of the sample mean, I showed my students an applet simulation. Furthermore, I demonstrated the Central Limit Theorem running a simulation in class using **R** and assigned my students a similar problem. To make the course more interesting I use real world data to analyze in class and for students to work on, as homework assignment, using **R**.

Recently, my proposal for redesigning the online course, Statistics for Research, for spring 2015 was funded through the Online Education Project at the University of Arizona. Statistics for Research is a course for the general graduate student population. The goal for this course is to introduce the students to the practice of statistics and give them the foundation they need to understand and master the basic practical skills required in their research field. I decided to use **R** for this course since **R** is rapidly becoming the industry standard for software choice in statistical analysis. Knowing that these students might struggle with learning a new software package and having them avoid the frustration of juggling around online to find **R**-code documentation, I wrote my own **R** tutorial. The tutorial follows each chapter in the textbook and provides some theory along with worked out practical problems and analysis in **R**, with the code carefully explained. To assess the students, the students are taking online exams using **R** to solve problems, in addition to homework and **R**-assignments.

I have enjoyed creating and developing new courses. In particular, I have found that I enjoy teaching probability and statistics courses, and I want to improve on and further develop those courses. For example, I would like to incorporate case studies in my statistics classes. I also hope the opportunity to design more online courses is available to me.