

## TEACHING STATEMENT

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As a graduate student in the Department of Mathematics of UC Berkeley, I had been a Graduate Student Instructor (GSI) five times. I covered a variety of subjects in mathematics. In my view, the teaching of mathematics is important because students need to learn quantitative reasoning for both their lives and their study in other disciplines, and we should also show the beauty of mathematics to students. The following are the key points in my teaching philosophy of mathematics.

### 1. INTERACT OFTEN WITH STUDENTS

In general the teaching of mathematics should be student-centered, which means that interacting with students are very important. I would like to know the goals and expectations of the students at the beginning of the course. During lectures, I would constantly ask the students questions to see what parts they don't understand or they consider difficult, so I could emphasize certain points accordingly. Office hours are also good opportunities to get feedback from students.

### 2. USE EXAMPLES FROM DAILY LIFE

Many students may believe the stereotype about mathematics that it is too abstract and not very useful. Actually our daily life situations motivate concepts from most branches of mathematics. So I put a lot of effort into connecting the class material to our daily lives. For example, there are several ways to define the constant  $e$ . One way is  $e = \sum_{i=0}^{\infty} \frac{1}{i!}$ , which seems too abstract. I prefer  $\frac{1}{e} = \sum_{n=0}^{\infty} \frac{(-1)^n}{n!}$ , because I can explain the formula as the limit of the ratio of the fraction of derangements of  $n$  objects. I believe that with such examples the students will understand mathematical concepts better.

### 3. EMPHASIZE PRACTICAL PROBLEM-SOLVING METHODS

Some parts of a mathematical course may be difficult to understand: abstract definitions, complicated methods, etc. I think it's common that after spending much time on a math course students still can not solve a related problem. To prevent such scenarios I always try to emphasize practical problem-solving skills in my lectures. For example, computing something from definition may not a good idea (like Riemann integrals), so I try to show the most practical method to my students. In addition if there are several methods for solving the same problem, then I would compare them and explain the pros and cons of each method, so the students can choose wisely when facing such a problem.

### 4. CONVEY IMPORTANT METHODOLOGY IN MATHEMATICS

In addition to the contents, it is also important to convey some useful methodological approaches in mathematics to the students. For example when overwhelmed by a lot of new concepts, one could focus on the definitions to get correct and helpful understanding of them. I always talk about the importance of definitions to the students. In summary, I want my students to benefit from my lectures in a variety of aspects.