

TEACHING STATEMENT

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My goals in teaching mathematics are to present the concepts in the simplest, most transparent way, to ensure that students become fluent and confident in their problem-solving skills, and to transmit the sense of joy and excitement I feel as the mathematical structures and possibilities unfold. The moment when a student successfully grasps a new concept and expresses his/her feelings with expressions like “Hmm, interesting!”, “very cool”, “wow”, “That’s really easy!” is a deeply satisfying experience for me.

My interest in teaching mathematics began when I was doing my undergraduate degree in Dhaka University, Bangladesh. In every math course I felt like I could explain things as clearly as the teacher. Later, after we formed a study group, my friends also felt comfortable when I explained problems to them. I also realized that by explaining the problems to my friends my knowledge of the subject was also strengthened. I believe that the students can learn from one another. Although a faculty member serves as the main instructor for a class, for the majority of students, the best way to learn is to spend more time working on problems and discussing them with other students. From my teaching at Brandeis University I have seen that working in groups benefits not only the weaker students in the group, but also the stronger ones as well, because explaining a concept to someone else helps to solidify one’s own knowledge of the subject. This made me realize that learning by teaching and learning from discussion are integral parts of the learning process.

I learned another lesson from my first teaching when I taught calculus in the evening session at IBAIS University, Bangladesh, where most of the students were working professionals. As both a student and a teacher, I clearly understood that the teacher should be responsive to all kinds of students. No matter when I was teaching, I constantly reminded myself that the students are at different levels, so it is very important to make sure everyone follows the class. This means, sometimes, that I had to explain the same concept or problem several times. I frequently told the students not to be afraid to ask questions and once in a while during my teaching, I stopped to ask for questions as I understood that not every student was bold enough to call them out. Besides holding regular office hours, I also encouraged students to make individual appointments; this ensured that they could seek help whenever they needed it.

Teaching at Brandeis University has taught me a lot of things that I never encountered when I was back home and this has enriched my teaching philosophy deeply. My first few semesters of teaching differential calculus at Brandeis taught me that unlike the students back home who learn from the same syllabus, students here are more diverse, coming from different countries and different educational systems. This made me realize

that I needed to take that into account and change my strategy. So my understanding of students being at different levels has broadened significantly and I started paying more attention to the weaker students of the class and learned to control my pace. On top of that I learned that understanding the background and expectations of the students helps in motivating them toward the subject. When I am at the blackboard, I try to keep a conversational style with my students, asking them for suggestions and giving them a few minutes to work out examples on their own. Sometimes I call them to the blackboard to solve the problem and explain the steps. I found that this kind of interactive activity motivates their interest into the subject and my later teaching evaluations reflected the success of these methods.

I also try to incorporate new things in my teaching. For example when I taught the probability and statistics course for the summer school at Brandeis, I tried to use real life examples by taking data from the current newspapers and online resources and gave them projects based on the online graphing software “Gapminder” and Hans Rosling’s presentations and the students really enjoyed that. I used both the blackboard and computer projector to deliver the lecture and found that that way I had more time to go through more problems on the board. This was also helpful to the students, given the short time they had for the summer course.

Throughout my teaching I believed that a good teacher should always look for ways to improve teaching skills. While teaching itself was certainly improving my skills, I paid great attention any suggestions either given by students or obtained from the semi-annual teaching evaluation conducted by senior professors. I am specially thankful for the advice and guidance that I received from our teaching coordinator Prof. Susan Parker and I believe a big part of my teaching philosophy is a reflection of hers. As a graduate student I have worked to become an excellent teacher, constantly reflecting on my teaching and striving to improve.

Looking forward, I would be interested in teaching any undergraduate math courses, from introductory courses in calculus, probability or linear algebra up though advanced undergraduate courses in analysis, differential equations, numerical analysis or combinatorics. I would also enjoy teaching graduate courses in mathematics. Given my experience of using Mathematica and Matlab, I will be eager to integrate these computer learning components into teaching whenever possible, as these tools have become indispensable for both academic research and industrial applications. As I embark on this profession, I look forward to developing as a teacher by learning from my students and colleagues.