

Teaching Statement

One can be a good teacher only if one loves to teach. Teaching was not something that I loved from the beginning. I love to do math, and the teaching responsibilities that came as part of being a graduate student I took only as a necessary nuisance. But over the years, my teachings made me appreciate how rewarding it is to introduce someone to the wonders of mathematics and to behold the development of an enquiring mind which is an inevitable outcome of this process.

Starting from my undergraduate years at University of Saskatchewan and throughout the last six years at University of Toronto I have worked as a teaching assistant for numerous mathematics and computer science courses, ranging from introductory calculus, logic, recreational mathematics, programming languages to advanced algebra, analysis, geometry, differential equations and combinatorics. I have also taught as an instructor a full year introductory calculus course for science majors at University of Toronto in the academic year of 2008-09. Teaching students with vastly different backgrounds and mindsets taught me the importance of adaptability. In a calculus course for humanities students, one is more likely than not to encounter a number of students with an already grown distaste for mathematics, whereas in an advanced math course the students are more likely to be interested in it. When my audience is of the former type, I would usually use a lot of examples and figures, my explanations would be more intuitive than rigorous and I will try to incorporate in my lectures some brain teasers; but when I am with more serious students, I would be more rigorous and try to explain the abstract approach (if any) along with the intuition for the solution of a problem. The primary motive in both cases are the same - to impart the sense of excitement to students - but methods have to be tuned to their minds.

One of the first tasks of a teacher is to create an environment of openness. From my experience as a TA, one is very likely to discover in a tutorial a small group of students with vastly superior understanding of the course material compared to that of the others. It is important to make sure that students with lesser understanding do not remain silent or get discouraged by disparaging remarks or attitudes of others. In my tutorials I would actively try to get across the point that “No question is stupid.” On the other hand, while answering questions, I also try to engage the students who already

know the solutions by pointing out non-obvious solutions, or by discussing the motivations for the problems or their relation to other ideas.

A necessary requirement to successfully perform the tasks described in the preceding paragraphs is to know the students well and plan ahead for potential ways to present materials accessibly to them. Two of the high school students I have tutored privately had almost zero arithmetic skills and had much difficulty understanding notions such as ‘addition of fractions’ or ‘average of numbers’. I had to come up constantly with more and more intuitive and simple ways to explain basic arithmetic operations. They found it more intelligible if the examples I presented to them were related to their daily lives. I used to prepare a multitude of examples and analogies for every lesson, which was effective. In the same way, the calculus course I taught last year as an instructor and all the other tutorials I held as a TA, taught me how to effectively plan an outline of the lecture before every session and especially how to design illuminating examples and homework questions.

Whenever asked to solve a problem during my lectures or office hours, I try as much as it is possible (within the time constraints) to make the students solve the problem themselves, helping them with small hints along the way if necessary. I believe that the best a teacher can do for students is to prepare them to learn by their own efforts. I try to accomplish it by instilling in them the excitement for mathematics and sharpening their deductive skills.