

# Teaching Statement

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I have always looked up to the profession of teaching as highly selfless and noble. Several of the people whom I greatly admired through my school and university years have been my teachers who have dedicated themselves to their profession and to their students. Therefore, it seems most natural that I follow in their footsteps.

I have already about seven years of teaching experience, both as a teaching assistant in Mathematics, Physics and Engineering at the University of Pittsburgh and also in the capacity of Lecturer in Mathematics and Science at Carnegie Mellon University, Robert Morris University, Chatham College, Community College of Allegheny County and University of Pittsburgh. I have been fortunate to have taught a variety of undergraduate courses. Among them are Calculus I, Calculus II, Calculus III, Business Calculus, Statistics I, Business Statistics, Operations Research, Basic Astronomy, Elementary Physics I, Physics for non-science students and Math Literacy. My teaching experience has spanned a variety of courses, universities and student levels and I feel that I am very competent, at this stage to handle any course at a faculty level.

As a teaching assistant I helped conduct problem sessions or recitations and graded homework assignments and exams for my classes while as an instructor I have designed and taught the entire course. On occasions, I have also given a few graduate lectures, substituting for instructors in Differential Equations, Continuum Mechanics and Fluid Dynamics courses. In addition, I have also had the opportunity to work with students more closely by serving as their co-advisor for the semester long Senior undergraduate project course (ME1043) at the Mechanical Engineering department of the University of Pittsburgh. I helped several groups of undergraduate students with their research projects which involved, over a period of two years, designing and building a fluids lab, conducting fluid dynamics experiments, conducting rheological experiments, writing research reports and preparing for presentations. This has been one of my most memorable experience. Through this program I have come to greatly value the significance of hands-on experience in teaching. For this reason, several of my advanced undergraduate classes have required a final project where the students get to apply the theoretical concepts that they have studied over the term and in the process also learn invaluable lessons through collaboration, presentations, critiques and often through failure.

Teaching has opened a new facet of knowledge that I did not know existed. I have come to realize that teaching is an essential part of learning for myself. I have benefitted as much, if not more, through this experience, than my students. I have found tremendous joy, excitement and self-fulfillment through teaching. Furthermore, I have also truly and deeply understood several things only after I have taught them. My teaching philosophy essentially boils down to allowing students to use their own skills and faculties to understand the subject at hand; to be able to see the world uniquely through their own eyes. Then they are bound to appreciate what they have learned. I am also for a holistic understanding of a subject. Any topic needs to be seen from several different perspectives for complete comprehension.

My classes are usually in a lecture format as most mathematics courses are prone to be. However, I try to elicit maximum participation from my students by encouraging discussion or having them solve problems on a topic that I just covered. This helps them focus attention on what they do not understand and also helps me decide if I must restate a certain subject differently. I have come to realize that a course cannot be taught the same way to all students. It usually changes every semester, with every class, depending upon the size, background, preparation and interests of the students. I also like to infuse my lectures with historical commentaries to the extent possible. I find that this helps grab the attention of my students and keeps them engaged in the subject under discussion.

With regards to technology in the classroom, I am neither for nor against it. I prefer to use technology on a case by case basis for it can be both a boon or a bane to learning. I adopt any tool that promotes healthy and true learning and allows for the growth of the student. I have made effective use of mathematical softwares, such as Mathematica, Maple, Matlab and Excel in some of the advanced classes that I have taught to emphasize and reinforce certain abstract concepts through visual examples. I make frequent use of the internet in my classes. There is abundance of useful information on the web, relevant to my classes, that can be made use of and also making my own website for my courses allows for easy dissemination of class notes and other relevant information. I am proficient at making webpages and usually prepare one for each of my classes. A sample webpage and syllabus for my Calculus course (Math 21-120) and Math Literacy course (Math-100) may be found at my current website: “[www.math.cmu.edu/~avaidya/teaching.html](http://www.math.cmu.edu/~avaidya/teaching.html)”.

For the future, I look forward to teaching a variety of courses at the beginning and upper level undergraduate and graduate levels, to interacting with all students and challenging them and myself with novel ways of thinking about new and old concepts.