

Teaching Statement

Ashwin Vaidya

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 has seemed most natural to me, that I follow in their footsteps. My own personal teaching experience over the last ten years has strengthened my conviction to become a teacher even more.

I have acquired substantial teaching experience in Mathematics, Physics and Engineering at several small and large institutions, since my graduate student days. I have been fortunate to have taught a variety of undergraduate courses. Among them are courses in Differential Equations, Calculus, Statistics, Business Statistics, Operations Research, Basic Astronomy, Elementary Physics, 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. On occasion, I have also given a few graduate lectures, substituting for instructors in Advanced Differential Equations, Continuum Mechanics and Fluid Dynamics.

I have also had the pleasure of mentoring undergraduate students for several years now. While a graduate student, I had the opportunity to work with students more closely by serving as their mentor for a semester long undergraduate project course (ME1043) at the Mechanical Engineering department of the University of Pittsburgh. As a postdoctoral scholar at the University of North Carolina, I have also served as the principal advisor on some research projects for several undergraduate students through the NSF funded RTG (Research Training Grant) program and also had the opportunity to work closely with graduate students. Working closely with small groups of students has been among my most memorable experiences. Through this experience 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, even for me. I have benefited as much through this experience, as my students. 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.

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 Differential equations course may be found at my current website: www.unc.edu/~avaidya

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. As an applied mathematician, I particularly look forward to teaching interdisciplinary courses at any level and to giving young scholars an insight into the spirit and beauty of mathematics and also the difficulties in applying mathematical concepts to real life problems.