

Teaching Statement

Amit Dhurandhar

Give a man a fish you feed him for a day. Teach a man to fish you feed him for a lifetime. This old adage captures the power of dissemination of knowledge and information. Though the term teaching indicates flow of information in one direction, generally any kind of interaction between two or more individuals leads to a bi-directional information flow. Hence, as a "teacher", I consider the act of teaching as a learning experience not only for the students but also for myself. The key ingredient for a class to be interesting for me was, if the instructor was able to provide keen insights into the topic which are not evident from simply reading textbooks. This is important since it leads to better understanding and a different perspective on the topic. I would like to provide such insights to my students. My experience with lecturing has taught me that involving students in discussions by asking them questions, maintaining eye contact and timely humor to freshen their minds are all essential for a successful discourse. I plan to incorporate the lessons learned from these experiences into my teaching with the hope of creating a stimulating environment for the act of learning.

I have been a teaching assistant for the course Applications of Discrete Structures during Fall 2007. The syllabus covered basic concepts in set theory, predicate calculus, counting, proof techniques and some other discrete math topics. My duties included conducting discussion sessions, grading and holding office hours. The discussion sessions consisted of two batches of around 40 students each and I used to lecture for 2 hrs. every week. I primarily motivated the subject as an exercise in thinking clearly which can be helpful even in other walks of life. I used to ask them a lot of questions so as to make the class interactive. The questions sometimes included fun puzzles, which kept them interested and at the same time made them think. The exams and homeworks had questions of varying levels of difficulty which ensured that everyone was challenged. In short, it was an extremely fun and rewarding experience for me and I would love to teach sometime again.

Considering my research experience, teaching experience and course work I would be glad to teach both graduate and undergraduate courses in Machine Learning, Data Mining, Algorithms, Discrete Mathematics and Data Structures. I would also like to design the following courses:

1. *Applied Probability Theory*: The course will cover basic concepts in probability theory, some standard theorems, sampling techniques, and applications in Machine Learning and Data Mining. The course will include homeworks, 2 exams and a project.
2. *Advanced topics in Machine Learning*: The course will be seminar based with students reading and presenting papers. I will discuss some important problems in the field and we will learn and constructively critique some of the state-of-the-art methods.

One of the objectives of the advanced level course is to expose students to my line of research and encourage further collaboration with those that are interested. I hope that I will be able to have the same kind of positive impact on my students that my teachers have had on me.