

Teaching Statement

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We make a living by what we get, we make a life by what we give. —Winston Churchill

Teaching is a valuable service where one is both a teacher and a mentor. As a teacher, my goal is to provide students knowledge and skills to learn the course material and to apply them when faced with new problems. Being a mentor, I want to introduce students to research early in their carrier and help them develop into successful professionals. During graduate school, I have found that I enjoy teaching at all levels from introductory programming classes to advanced operating systems. Outside teaching I have served on academic committees both at the department and at the university level.

Experience and Approach. I have had excellent opportunities to help teach two introductory-level undergraduate courses, CS303E (Elements of Computer and Programming) and CS313E (Elements of Software Design). For CS303E, I lead two weekly recitation classes where TAs introduce new material, supervise homework graders, hold office hours, and help prepare and evaluate exams. When preparing my recitations, I focused on presenting the “big picture” first and then breaking the problem into clear simpler structures supported by frequent signposting and emphasis on fundamentals. While introducing new concepts, I would often come up with concrete examples to illustrate their practical uses. I found these top-down and leading-by-example techniques to be quite effective – not only did students quickly learn to tackle logically related subproblems, but also apply these techniques to programming assignments and course projects.

I also served as a TA for an advanced graduate course on operating systems in which I graded and gave feedback on students’ critiques of research papers. At IIT, I TAed two courses: Data Structures (CS130) and Algorithms (CS391). For both courses, I received recognition letters from the course instructors.

In the classroom, my approach has been to help students think about the problem and how to solve it before they see the solution. After posing a problem, I often called individually to answer questions and sometimes even to present their solution on the blackboard. While presenting, if I saw the student getting stuck or doing a mistake, I asked rest of the class to identify the error (and explain why?) and the next step towards the solution. For larger classes, since one-on-one interactions are limited, I modified this approach to have students work together in small groups (usually 2-3) and give feedback on each other’s solution. These collaborative learning techniques proved useful: many students showed increased confidence and participation during class discussions. I also learned from these interactions: when students explained a solution in much simpler terms than my notes, I used it as a feedback to better prepare my lectures.

As lead of our research group, I have advised two junior graduate students during the last two years. Rather than simply assign responsibilities for individual tasks, my approach instead has been to work closely together—brainstorm the problems, encourage questions, review and give feedback on designs, and promote group collaboration by making each member aware how their strengths complement each other and their contributions to the overall project.

Service. My interest in teaching and helping students has also led me to hold other responsibilities. At the university level, I served as the graduate student representative on the Research Policy Committee that advises the president on matters relating to the research mission of the university. I worked towards representing and defending graduate students’ interests on important issues such as competitive stipends, benefits, and faculty sabbaticals; I received an appreciation award for this work. I have also been actively involved as the UTCS department representative in Graduate Student Assembly, the main graduate student body at the university. At the department level, I have served twice on the Graduate Student Faculty Recruiting Committee in which we discussed each candidate’s record and papers, interacted with the candidate, and gave feedback to the faculty hiring committee.

Teaching Plans. My technical background and teaching experiences qualify me to teach undergraduate courses in operating systems, networking, distributed systems, and databases, and advanced graduate courses on operating systems, distributed systems, and databases. Further, based on my dissertation work, I would like to develop a seminar course on increasing convergence between networking and database systems, and the need for research that spans the two disciplines.

I look forward to the opportunity of introducing and motivating students to research and critical thinking in computer systems.