Teaching Statement

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Teaching Philosophy

My philosophy varies a bit depending on level of the course, but several themes are present. I like an interactive class setting, and I attempt to achieve that by asking lots of questions of the students during the lecture (a modified form of Socratic lecturing style that encourages students to help discover and develop the material). I try to make the material as relevant as I can to everyday student experience. For example, in Spring 2003, I had the students work in groups to write a specification for a distributed file sharing protocol (a la Gnutella), followed by coding to an official specification that I made available. One student commented by email, “...I really really really like this project. It’s probably the most fun I’ve had coding for a CS class in a long time.” In lower division courses, I give quite a bit of homework to help develop basic skills. In upper division and graduate courses, I tend towards more project-oriented, group assignments.

Course Development

I developed the new semester course CS 3251: Computer Networking I. This undergraduate course provides an introduction to problems in computer networking and enrolls more than 200 students per year. The philosophy of the class is to present the basic problems that arise at each of four layers of the protocol “stack” (data link, network, transport and application) and emphasize current best practice as deployed in the current Internet. A follow-on class (CS 4251) makes a second pass through the stack to provide depth via a discussion of alternative solutions. The CS 3251 class includes programming of networked applications, allowing students to experience protocol design and the challenges of interoperability directly.

I also developed the semester course CS 7270: Networked Applications and Services. This graduate course provides depth in the upper layers of the protocol stack. The course covers a selection of networked applications and services that vary from one offering to the next, and are largely based on a research paper reading list. In Spring 2002, the set of topics included peer-to-peer networks, server selection, network monitoring, mobile/ad-hoc services and active services. The course includes a significant project component that allows students to develop an independent research-oriented topic.

Course Portfolio

I have taught at all levels of the undergraduate and graduate curriculum, with the exception of the 2000 level. In addition to teaching the two core undergraduate networking courses (CS 3251 and CS 4251), I also taught the freshman level theory class (CS 1155) five different times. I enjoyed the opportunity provided by CS 1155 to focus entirely on teaching. That class has more “lightbulb” opportunities than upper division undergrad and graduate courses. The material is difficult for many students and requires structured thinking that is new for most undergrads.
Undergraduate Research Project Supervision

I have consistently involved undergraduate students in my research program, with about two undergraduates working on special problems at any given time. I also participated for five years in the CRA Distributed Mentor project, which pairs female faculty with female undergraduates in a summer research experience. I have been a faculty advisor to seven different undergraduate women through the CRA program; I also served on the selection committee twice. Six of the seven students that I advised went on to graduate school (2 to Berkeley, 2 to Georgia Tech, 1 each to Purdue and U. of Washington).

Graduate Student Supervision

I have maintained a research group with generally 8-12 PhD students at any one time, most of whom are funded by research grants. I have had the pleasure to graduate six PhD students, with two others on track to graduate in Spring or Summer of 2004. Two of my students have gone on to academic positions (Jeff Donahoo to Baylor and Bobby Bhattacharjee to U. of Maryland); four are in industrial positions (Fang Hao at Lucent, Youngsu Chae at Samsung, Tianji Jiang and Zhiruo Cao at Cisco).