

Teaching Statement

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There are two main reasons why I am interested in teaching. First, it provides a valuable service to the community. Many people have taken the time to teach me well; teaching others is a way of saying thank you. Second, it gives me a restorative break from research. Research is all about finding novel solutions to tough problems. After a few hours of that, I look forward to talking with students and preparing lectures about material that I know well.

I am qualified to teach the standard courses in theoretical computer science, such as complexity and algorithms. I can also teach computer security and, thanks to the excellent instruction given by Fred Schneider and Ken Birman, I am comfortable teaching operating systems and distributed systems as well. I would like to run graduate seminars in digital rights management and privacy. Given a few months lead time, I am happy to teach a much wider range of courses. In particular, I am interested in learning about and then teaching courses in human-computer interaction and digital libraries.

I have been the instructor for a six-week course introducing students to the field of computer science and a four-week course on Java. My lectures typically use simple (non-technical) language to explain why a particular problem is worth solving, then I consider the first approach that is likely to come to mind, explain why it does or does not work well, and improve upon it as necessary. Students seem to enjoy my presentation style because, frankly, they can usually follow what I am saying, and I am rather animated. I think they respond to my enthusiasm. In addition to giving clear lectures, I think it is helpful to have lecture notes available online within 48 hours of the presentation, to run a problem-solving session once a week, and to assign homework regularly.

This is a lot of work, but there are ways to minimize the time commitment without sacrificing the quality of the instruction. For example, preparing a good lecture takes a great deal of thought. However, most of the material that I will teach has been taught before. If I can find a set of notes created by someone who is willing to let me adapt them for my class, then the task becomes easier. As another example, I do not intend to create summaries of my lectures and post them online. Instead, I think the students should take turns creating the notes, which I would then review and give appropriate feedback on. This approach saves me time and, more importantly, it is a good indicator of how clear the lecture was. If the student who was most likely to pay attention, namely the one who knew he would have to write up the notes, misunderstood something that I said, then it is likely that other students did too. I can correct the misunderstanding at the next class. Finally, the time needed to prepare and run a problem-solving session is significant. If I have a teaching assistant, then this could be her recitation. Alternatively, I could have a session only before exams (roughly every three weeks) or start sessions mid-semester if students are having problems.

When I was an undergraduate, I ran two types of problem-solving sessions. In the first, students were put in groups of three or four. Each group was given the same problems to solve and I walked around helping whichever groups were having trouble. In the second, I presented problems on the board and solved them with as much student participation as I could muster. I think the first

approach works well at building student morale and camaraderie. If no one in a group knows how to approach a problem, then everyone in the group seems to take solace in the fact that they are not the only person who does not know what to do. If some people in the group know what to do and some others do not, then the knowledgeable ones feel smart and usually enjoy teaching the others, who then seem to feel encouraged and often are able to learn the material from the individual attention. Despite these benefits, my student evaluations showed that, by and large, students prefer the second approach. The second approach also has the benefit of being more efficient in the sense that usually more problems can be covered in an hour. If I am teaching a course that has an assistant, I would present these options and have her run the sessions as she prefers. If I do not have an assistant and still choose to run a weekly session, then I would probably have students form groups on the weeks in which they did not have an exam and present the problems with audience participation on the weeks in which they do.

I would like to conclude by stating my personal belief that being a teacher is more than being someone who explains course material to students (although that task is certainly hard enough). A good teacher listens to her students and advises them as needed. I have helped students who were overwhelmed to find reasonable plans of action and have also given referrals to career counselors and therapists. I intend to continue this form of mentorship throughout my career.