Titus Winters - Teaching Statement

By the time I complete my graduate studies at the University of California at Riverside I will have taught — as a lecturer — ten undergraduate Computer Science courses in five subjects, served as a Teaching Assistant or Lab Assistant for eight courses, and student-taught a course on Storytelling. My teaching experience has led me to make many refinements of my teaching methods, and has demonstrated that teaching is one of the most important aspects of my life.

I have taught introductory courses in data structures, algorithms, operating systems, and computer networks. Next quarter I am scheduled to teach Senior Design Project in Software Engineering. In addition to these, I can teach additional courses at the advanced undergraduate or graduate level for data structures, operating systems, and computer networks. I am also interested in teaching introductory courses in security, architecture, machine learning, vision, systems administration, and software engineering.

Students learn in many ways, but one of the least effective is a "traditional" formal lecture. This is especially true in a challenging technical discipline like Computer Science. As such, I try not to give traditional lectures. I prepare lectures by implementing the algorithms I discuss, and developing demonstration programs to highlight new concepts. My lectures are interactive, responsive to student questions and interest, and intended to engage students whenever possible. I try to maintain an awareness of student interest and attention, and am willing to switch methods mid-lecture if their energy starts flagging. To encourage student interaction, I bring a bag of candy to lecture to reward students who ask questions or point out flaws in my demonstrations. I joke with students in lecture to further the informal atmosphere. I don't use PowerPoint, I code "live" in front of the students. This gives them the opportunity to see good coding practices (and, inevitably, good debugging practices) in action. I often break seventy student lectures into small groups to work out a solution to a concurrent programming concept. It is often better for students to actively work on a problem than to passively listen to me talk. I was once told that a lecture that doesn't require a student's active participation every twenty minutes is a failure. I take that lesson to heart.

I believe very strongly in hands-on learning. A perfect example of this is my work on Tinker-Net, a project I proposed and led while I was an undergraduate at Harvey Mudd College. With TinkerNet, students in an introductory networking lab can build their own TCP/IP stack from Ethernet up to the application level. The student's code is then run on real x86 machines, and packets are sent on real Ethernet hardware. The project functions with extremely minimal hardware requirements so as to be adoptable by schools with little to no budget for such projects. I look forward to having the opportunity to build similar systems for other courses in the future.

I feel it is important to give students a societal and historical context for material that is often presented in a sterile and technical fashion. For example, a portion of my Computer Networks course was graded on discussion of societal and ethical issues brought about by the development of the Internet. I am currently organizing my Operating Systems course to follow the historical development of the various components that we regard as essential in a modern operating system. This gives students some exposure to important figures in computing, as well as a more understandable approach to understanding the interconnected parts of an operating system.

I regard teaching as one of the most important things that a person can do in life. I take my teaching very seriously and approach it very consciously, including my informality in lecture. I try to be available for the students whenever possible, even if that means coming in for extra hours to help on the night of an assignment deadline. Students have regularly noted that they don't know anybody with a faster response time for email. Some students even take to heart that I don't believe there is such a thing as too many questions. One student went so far as to send me 317 messages

in one summer course. While I enjoy teaching bright students, I find it is the students that have to put in a little extra effort that are my favorites. The most rewarding experience comes, not with teaching those that immediately understand everything, but with teaching those that need to be given a little nudge before the light comes on. With this history and philosophy, I feel comfortable making the claim that I put my students first. Helping students is my top priority as well as my calling in life, and I am happy and proud to put a great deal of myself into it.