

# Teaching Statement

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I am excited by the prospect of teaching at the university level. I feel that one of the greatest benefits of working in a university environment is the possibility of interacting with students, particularly in the classroom. It is a unique experience in collaboration. I feel that the teacher learns at least as much as the students, and the tremendous responsibilities that come with being a teacher give the teacher the opportunity to grow as a person.

My teaching philosophy has been significantly influenced by excellent teachers I have had, particularly at the university level, and by my own experiences being the teacher or teaching assistant for undergraduate and graduate courses. I have taught undergraduate computer science courses at Purdue and at the DeVry institute of technology. I have also served as the teaching assistant for undergraduate and graduate computer science courses at Purdue.

An important element to my teaching philosophy is that students learn most effectively when the material can be related to something with which they are familiar. A good example is the introduction of the notion of an algorithm by writing one for an everyday task such as starting a car. Such an exercise brings out the assumptions about the environment in which the algorithm is to be deployed, and also accentuates some important nuances, such as the issue of whether the algorithm is guaranteed to terminate.

I feel that this ties into a multidisciplinary approach to teaching as well. I feel that a multidisciplinary education is essential, especially at the university level. Even for graduate students that tend to have a more focussed curriculum, I feel that a multidisciplinary tilt is useful. Such an approach can help ground abstract topics. It can also kindle new ideas and approaches.

Another element to my philosophy is the importance of work outside class. I am a firm believer in the value of homework assignments and projects. I feel that I have learned much more from work I did on my own outside of class than something that was told to me during a lecture. It also gives the student time to ruminate over the material. This I feel is essential, particularly for advanced topics.

A fourth element is the lecture style. In this, I seek to emulate the best teacher I have had. He has what I call an “evolutionary” approach to teaching, which involves introducing a problem or family of problems and then leading the students to a solution to it in class. In other words, we evolve the solution together. This gives tremendous scope for lateral thought and gives the students a sense of accomplishment. I feel also that this greatly enhances retention of the material. In this context, it is also important to organize a course so that there is continuity as one topic is introduced after another. This way, there is a continuity in the thought process as well, from addressing one problem to the next.

Another element is research as an avenue for learning. While this may not be appropriate for some courses at the freshman and sophomore level, I feel that research should be an essential component of any university education. Consequently, I believe in giving latitude to students to investigate specific topics of interest to them within a broad framework. This ties in with my feelings about home work assignments and projects; I feel that a part of those should be research-oriented.

I feel that I can teach any computer science course at the undergraduate level. Indeed, at Purdue I have taught or been a teaching assistant for courses on introductory programming, object oriented design, numerical methods and theory. At DeVry, I taught a course on TCP/IP and network security. At the graduate level, I can teach courses in security, theory, operating systems and networking. I would also like to design and teach other courses on research topics of interest to me, such as one on access control. This will allow students to assess whether I may make a good partner for their projects or theses, and for me to identify students that may make good partners in my work.