

Statement of Teaching Interests

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Throughout my life as a student, I have always admired my excellent school teachers and university professors. I especially enjoyed the enthusiasm that emanated from some professors as they were vividly explaining a subject. One could easily tell that they had such a passion and love for what they were teaching. They have all inspired me to love a teaching and an academic career. I also want to be able to inspire and educate young and fresh minds. There is nothing comparable to sharing the knowledge you love because knowledge can only be valuable if it is shared. My experience as a computer science lecturer at Al Akhawayan university in Morocco has deepened further my passion for teaching.

Teaching Interests I am interested in teaching core computer science courses at the undergraduate level. My education and teaching experience in core areas include discrete mathematics, programming languages, computing theory, operating systems, computer networks, data structures, algorithms, and databases. At the graduate level, I would like to teach courses and seminars in the areas of grid computing, distributed and concurrent systems, high-performance computing, and advanced parallel-programming techniques.

Teaching Experience A teacher should be well-equipped to convey in clear and appealing ways relevant knowledge, to stimulate and excite students about the course materials, and to focus on teaching students how to acquire knowledge as opposed to just learning facts.

My experiences in teaching have allowed me to exercise, sharpen, and appreciate more and more these skills. My first exposure to teaching was as an undergraduate student at Al Akhawayan University in Morocco. I served as a teaching assistant for a variety of courses: Physics, Electrical Circuits, Data Structures, Databases, and Computer Architecture. My duties included holding office hours, grading homeworks and projects, and leading weekly lab sessions. This experience has been very rewarding. It was such a good exercise to be able to teach students materials I had learned recently but this time from a different perspective. I learned that sometimes it takes several ways to show the same concepts to different students. Later on as a masters student in the same university, I was given the opportunity to be solely responsible for teaching the course Computer Skills for Independent Learning. This course was targeted to all first-year university students and had the goal of providing them with basic knowledge about how to effectively use computers to support their learning process. This course allowed me to interact with students who had no prior computer experience. It also gave me the opportunity to learn how to explain some concepts such as the Internet and Databases in simple ways to novice students. I had to rethink basic computer concepts that we usually take for granted and learn how to introduce them using non-technical terms and lots of analogies and examples.

After completing my masters degree, I accepted a job offer as a computer science lecturer (January 2001-June 2002). I taught Computer Architecture and Assembly Language Programming, Computer Net-

works, C and Pascal Programming, and Computer Skills for Independent Learning. My responsibilities included lecturing, designing class notes, preparing homeworks and programming projects, grading, and advising students. I was also responsible for training talented students for the ACM programming contest and teaching them the necessary skills required to solve challenging problems. I enjoyed every moment I spent during my assignment as a lecturer. I also enjoyed mentoring and advising students. The one-to-one interaction with students is very important to answer to students' particular needs that cannot be fulfilled during regular class hours. I learned from my exposure to various groups of students from different levels and backgrounds, that it is important to adapt the teaching style to fit different categories of students.

Teaching Philosophy I believe that learning becomes most efficient if it can appeal to students at a personal level. Students learn better when they are actively engaged with the learning process at both a personal and an intellectual level. It is important to engage students in classroom discussions, invite and encourage students to volunteer to the board and attempt to solve specific problems, stimulate students' interest and imagination by drawing from real-world examples, and guide their reflection on the process. From my past teaching experience, I have found that encouraging students to take personal notes in class is a very useful practice. It helps them assimilate better the class material. I also believe in the open-book exam philosophy as it gives the teacher the opportunity to come up with interesting questions that evaluate how far the students have learned the concepts as opposed to how well they learned by heart certain facts.

Computer science is a problem-solving field. This aspect needs to be emphasized while teaching different topics such as programming fundamentals, data structures, algorithms, and operating systems. One way of achieving this is by giving several examples and showing the role that computer science plays in other disciplines such as biology, physics, and medicine. This helps put many of the necessary details in context and make them more meaningful to students.

At the undergraduate-level, there should be more emphasis on teaching the underlying principles of a subject rather than the simple mechanisms necessary to pass an exam. The problem-solving techniques and the fundamentals of a subject can forever benefit students in the rest of their professional lives. There should be also a great focus on the practicality of the topics by giving several interesting interactive programming assignments and encouraging hands-on experiments. Undergraduates should also be encouraged to participate in undergraduate-research projects. It is a very rewarding experience because it opens up their perspectives to the realm of research and it encourages them to pursue further a graduate degree. At the graduate-level, more focus should be given to collaboration, critical and creative thinking skills. Students should be exposed to existing research. They should also be encouraged to critically examine course-related research and to come up with their own ideas. This will greatly help them build the confidence necessary to formulate great ideas and propose innovative solutions.

Addressing Minorities As a female researcher, I strongly feel the under-representation of women in the computer science field. I plan to undertake several teaching and professional activities aimed at increasing the number of women's participation in computer science. I intend to encourage the participation of female students in the CRA-W Distributed Mentor Project, which matches female undergraduates with mentors for a summer of research at the mentor's institution. I also plan to organize several workshops targeted at female undergraduate students with invited female speakers, presentations, and posters sessions that aim at increasing females interests in computer science and inspiring them through non-traditional means. I have participated twice in the Grace Hopper event and I was pleased with the efforts being undertaken to empower women in computer science. I intend to continue my participation and have an active role in this conference.