

## STATEMENT ON TEACHING

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As a graduate student and new professor I have had several opportunities to teach. Each experience provided me a unique view into the world of teaching. Most importantly, I learned that good teaching is extremely challenging, yet at the same time, profoundly rewarding. I find this dual nature of teaching (and learning) invigorating, and the opportunity to interact with students refreshing. Teaching is a thrilling experience and an important reason I seek an academic career.

I view teaching as an art form that builds on the idea that every student holds the potential for academic success. It is my job as a teacher to provide the proper guidance and assistance necessary to achieve this success. In the end, each student should have a firm grasp of the material, make critical observations and extensions to the concepts presented, apply those concepts to solve problems in computer science, in other disciplines, and in the world around them, and have an appreciation for the material in its own right. At the same time, it is important to recognize the variety of techniques to reach this goal and when the application of new strategies is required to attain engagement in the classroom.

Several approaches can be used to make learning (and teaching) exciting and dynamic for any subject matter—each having their own strengths and weaknesses depending on the content and student backgrounds. My goal as a teacher is to draw from as many resources as possible to creatively present material in new and diverse ways. This could be as simple as changing the color and style of my presentation slides to having impromptu discussions in the middle of lecture to encourage active participation. My intention is to make lectures more memorable to promote lasting connections between students and the presented material.

Teaching style aside, there must be good reason for a student to take a course in addition to the subject matter. Course material must be current and accurate, and presented from a variety of sources. Homework assignments need to be well crafted and engaging—students should think critically and be challenged, yet have fun constructing the solutions. Projects should be designed to connect theory with real-world applications, be relevant to the content, allow for student creativity and collaboration, and be achievable within the time frame of a semester long course. As a teacher, I must apply each with clarity, consistency, and fairness to make the course worthwhile and productive with the intention to build a positive reputation that will draw students to my future courses.

I use this approach as a basis for constructing course material for new and innovative classes and seminars. This includes new methods, assignments, and projects for introductory courses on compiler techniques, databases, computer networks, operating systems, web technologies, artificial intelligence, and computer architecture as well as advanced topics such as compiler optimizations, just-in-time compilation, distributed systems, machine learning techniques, and knowledge representation. I am also interested in teaching courses related to the foundations of computer science such as computation theory, data structures and algorithms, introductory and advanced programming, programming languages, computer ethics, and logic, developing new course material and project infrastructure, and introducing transformative strategies to attract undergraduates from diverse backgrounds to pursue a degree in computer science. I am also interested in teaching courses that are cross-discipline such as topics in bioinformatics, high-performance scientific computing, and graphics and art.

Effective teaching is not just a skill reserved for the classroom, but it is also an important criterion for advising undergraduate students. In this case, however, the emphasis is on guiding students to success throughout the academic program. This includes providing direction on choosing courses, pursuing honors theses, encouraging involvement in research, and securing internships. It is also important to provide timely meetings to discuss progress, opportunities, and goals, and to help prepare them for the requirements and challenges in academia or industry. My own experience has been positive and successful—shaped by consistent attention and meetings with my mentors and colleagues. I continually improve on this by placing additional emphasis and guidance on undergraduate honors theses, research experience, and internships, all being extremely important for students pursuing careers that involve computer science and technology.

Teaching is not a simple skill to be mastered, but an ongoing process of improvement and adaptation. The thoughts and ideas of students across semesters can contribute significantly toward strategies for effective teaching. Taking note of how students learn provides a significant direction in planning and developing lectures and courses. The opportunity to interact closely with people, to develop course material, to energize students with the exciting problems and ideas found in computer science, and to guide students at all levels toward a successful academic experience is a rewarding adventure in which I delight.