

Marshini Chetty | Teaching Statement

TEACHING EXPERIENCES

Like many other graduate students, I was a teaching assistant during my Ph.D., and I have given guest lectures for courses taught at Georgia Tech. However, it was my experiences as a Lecturer in the Computer Science department at the University of Cape Town in South Africa that inspired my teaching philosophy. As a Lecturer, I taught two courses on introduction to programming using Java to first year undergraduate students, 72 from Computer Science and 98 from Engineering. My experience was challenging because the Computer Science students were part of a special program for “previously disadvantaged individuals”, who had in many cases not had prior exposure to computers (or technology), under the Apartheid rule in South Africa. As such, several students had never even seen a computer, had no concept of what a “mouse” was, or how to “click buttons” on the screen. Crafting my lectures required careful consideration of how to explain complex programming concepts to these students in terms they could relate to, and so that they would be able to grasp the material and succeed in the class. During tutorial sessions in the computer laboratory, I also helped students overcome a fear of breaking the computer, so they could complete their programming tasks. In all, this experience was very rewarding, particularly since most of class not only understood the core aspects of programming but by the end several excelled in the final tests and exams, which I set myself; the overall pass rate was 91%. I was also able to compare my experience with this class to the other class of engineers in the regular introductory programming class, which was compressed into a shorter time span.

My experience as a Lecturer was not my first foray into teaching. Rather, as I pursued my own undergraduate Computer science degree, I enjoyed every opportunity offered to gain more teaching experience. I served as a CS tutor in my second and third year of my own studies. In this capacity, I was assigned a “tut” or tutorial group comprised of 6 to 10 students. I managed my group and conducted weekly sessions that were primarily spent going through practicums in the computer lab. I also graded tests. When I entered the Honors program at University of Cape Town (and continuing into my Masters studies), I was the teaching assistant for two introductory programming courses for “previously disadvantaged students”—with class sizes between 80-110 students. In this role, I coordinated tutors and their “tut” groups, handled Q&A from both students and tutors, managed the course website and accompanying materials, and facilitated test grading sessions with tutors. I also served as the point of contact for disputes in grades. When I entered the Ph.D. program at Georgia Tech, I similarly served as teaching assistant for the course on Computers, Society, and Ethics, a mandatory course for all undergraduate CS students. Much like my role in South Africa, in this capacity I handled grading for tests and class assignments, curated the website, and attended classes to help answer student questions. These positive experiences with teaching and my research passions inspired me to build a career as an academic.

TEACHING PHILOSOPHY

From my experiences as a Lecturer, I distilled two core pedagogical beliefs about teaching:

1. **Foster Passion:** My students in both classes responded well to my use of real world examples and personal anecdotes related to the class materials. In particular, sharing my research interests, tying the materials to local events and happenings, and letting students know that even the experts had to struggle to solve tough problems, all served to inspire students. Moreover, by illustrating to

students the link between programming and creating applications to address many different types of pressing real-world problems, it became easier for them to appreciate how learning core concepts makes way for building many spectacular computing applications to meet various needs. I also noted that when students develop a passion for the material they are learning, they tend to retain the knowledge, and are more motivated to get to grips with the course work. Thus, fostering passion so students can see how the course materials apply to them and their own lives is a key part of teaching.

2. **Learn Via Practical Experience:** Even for those students who had never used a computer before, having practicums and tutorial sessions in the computer lab where they could go through class exercises and create working programs helped solidify what they were learning in class. Unsurprisingly, those students who actively participated in practicums and overcame roadblocks were more likely to do well in the class. Similarly, when students in the Engineering class were able to complete programming assignments and tasks, even if they had to work very hard to understand the often challenging problems, they were more likely to be able to apply their knowledge to problems outside of the scope of the class. As such, I came to believe that without practical experience, students cannot fully appreciate or retain the material taught in a class.

MENTORING AND ADVISING STUDENTS

Informally as part of the “Big Sisters/Little Sisters” graduate women organization’s program, I mentored incoming female Ph.D. students for two consecutive years. I served as go-to person for questions about graduate student life and I assisted these students in becoming situated at Georgia Tech. Formally, I worked with many undergraduate and masters students on research projects of my own devising throughout the Ph.D. program and into my post-doctoral position. In particular, I have a continued interest in mentoring women and minorities at both the undergraduate and graduate levels and pushing them to new heights. For example, one of my female undergraduate research assistants was awarded a Georgia Tech Presidential Undergraduate Research grant with my assistance and she won an “Outstanding Oral Presentation” award at the Georgia Tech-wide undergraduate research symposium for her project on music consumption in a digital age. In another case, I mentored a female Master’s student on a qualitative study and encouraged her to continue her studies. She subsequently joined our lab as Ph.D. student. Other students I mentored have graduated and moved onto industrial or research positions at Amazon and Georgia Tech Research Institute. Overall, my mentoring experiences have led to three publications at top-tier venues with the assistance of two Master’s students and three undergraduates on 3 separate projects.

FUTURE TEACHING PLANS

I am excited to become more integral to educating students, as I believe that is one of the core aspects of being a professor. Given my research background, I would love to teach a class on Ubiquitous Computing, Human Computer Interaction, Prototyping, User Interface Design, or “computing for good”, including a focus on sustainability and international development. I would also like to create a graduate class on Qualitative Methods in Research. Given my professional experience as a lecturer, I am happy to teach introductory undergraduate classes on programming and research methods, both to computing and non-computing majors. In addition, I seek to continually expand my repertoire to cover other Computer Science or HCI specific courses as needed.