Teaching Statement
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As a Teaching Assistant Professor at North Carolina State University (NCSU) from 2012 to 2018. I have taught 2790 students in 33 course sections. I have learned a lot on the job from my students, TAs and colleagues. The more experience I get, the more I get reflective about how I teach and design my courses. I have become more curious about different learning theories as I am always searching for better ways to teach my students. Here is a summary of some of my current teaching values and goals.

Teaching Values

Inclusive Practices, Respect and Encouragement
My goal is to create a welcoming and respectful learning environment for my students. Even in large courses, I strive to provide opportunities for the students to be able to get help if they are struggling with the material. I realize that obtaining a college degree is a lot of hard work and therefore I always encourage my students to persist and to pursue their dreams. I introduce my students to the Growth Mindset Theory which says that people’s intelligence is not fixed and with extra effort people can get higher achievements and be more successful. I also train my teaching assistants (TAs) to be respectful and to avoid unconscious bias when interacting with the students or grading their work. I set high standards and clear ground rules which highlight the positive behaviors expected from the TAs and students in my courses. For example, I encourage my TAs to demonstrate how much they can help, not only how much they know. I value course organization and clarity of expectations and learning outcomes which helps both the students and the teaching staff.

Foster Critical and Creative Thinking
As students graduate, it is very important that they are able to apply critical and creative thinking when solving new problems, when evaluating the work of others and when reflecting on their own thinking. This remains true if they get a job in industry or if they continue their studies in graduate school.
Students should be introduced to the breadth of topics in their major but also develop the necessary skills to be able to dive deeper and explore specific topics in detail. This will ensure that they are successful, innovative and well prepared to tackle new problems as they begin their careers.

Typical assignments in introductory Computer Science courses require students to be critical thinkers and show precision, accuracy and logic. My goal, however, is for the students to also be creative, original, adaptable and flexible in their thought. In my classes I incorporate open-ended projects, reflection, peer reviews and collaboration. I use Bloom’s Taxonomy to create assignments and assessments so that my students can practice higher order thinking. Factual knowledge is definitely not enough and students should be asked to evaluate, analyse and even generate new ideas.

While teaching, I believe that it is important to go back to the big picture and give overviews, intuition, and mental models of the concepts. If the students understand the core concepts then they will be motivated to learn the details covered in class. The students’ understanding of the intuition behind a concept is the most important message to remember from a class, since the details can be easily forgotten.

**Active Learning leads to Engaged Learners**

Students have different learning styles, personalities and academic backgrounds. Some students thrive on lectures and theory but most students learn much better with lots of examples, visual materials and hands on activities. Some students learn well in groups while others prefer to work alone. Some students have had experience in the subject while others are completely new to the topic. Students also have different motivation for taking courses, some want to get proficient in the topic while others simply focus on grades and passing the course.

There are two ways to look at this problem. A very superficial way is to categorize students as “bad” and “good” students and thus place all the responsibility on the students. This, however, does not solve the problem of disengaged students. A much better solution is to focus on how the teaching is done in the course and what the students are doing in the course and how that is impacting their learning.

Active learning is defined as anything that involves the students in doing things and thinking about the things they are doing. I believe that no class should be taught by just lecturing as research tells us that people can concentrate on listening only for a few minutes before their minds wanders off to other things. Active learning engages the students with the content, helps them stay focused so that they are able to connect the new material to things they have previously learned.

I look for ways to incorporate active learning in all of my courses. I always use clicker-based peer instruction questions in between any lecturing. When I introduce a topic, I always follow it with a question that asks students to reflect on their understanding of it. I use the method of peer-instruction, where students are first asked to come up with a solution alone and then work in small groups to solve the same problem. I also pause during lecture and generate group discussions around topics with think-pair-share activities, peer reviews, brainstorming, etc.

**Project-Based Learning -- Relevant to the Learner**

The best way of learning is by doing. According to Edgar Dale, people generally remember only 10% of what they read, 50% of what they see and hear but 90% of what they do. In my classes I always incorporate practical hands-on projects. I look for interesting project topics that have larger societal impact and/or are relevant to the learner. I have created projects that use more serious data sets such as election data, social security baby names, high performance cars, twitter sentiments, financial stocks, truss/frames engineering design, etc. However, I also want my students to be able to relate to
the topics and have fun while learning so I have also created projects around games such as Battleship, Mastermind, Connect Four, Adventure Games, etc. I want my student to see the impact of Computer Science but also be able to personally relate to the topics and have fun while learning.

**Future of Education -- Digital Learners**

Technology is changing our society in so many ways but especially how people interact with each other. Undoubtedly, many of these changes are coming to higher education as well. I believe that in the near future, teaching will be much more online and digital and instructors will not lecture but rather they will become managers of the online information and facilitators of face to face discussions and problem solving sessions.

I am an early adopter of educational technology because I believe that it brings efficiency, innovation and organization to my courses. I also think that this is helping my students develop the necessary 21-century skills in an increasingly digital and connected age. I always have an active online forum, I use learning management systems, my tests/assignments are online and paperless as much as possible, I use learning tools, videos, interactive online textbooks, etc.

**Scholarship of Teaching and Learning (SoTL)**

SoTL matters because it helps students learn more effectively and it offers instructors ways to more effectively teach their discipline. SoTL is the scientific way to research and determine best practices for our courses. I keep current on new ideas, methods, educational tools and best pedagogical practices that show increase in students’ learning in Computer science. When trying something new in my courses, I look for ways to study it and determine its effect on learning and/or students’ perceptions.

**Teaching Goals**

As I look toward to the next few years and reflect on my teaching since 2012, here are some of my teaching goals:

**Blended Courses**

I want to minimise lecturing and just delivering of information to my students. Instead, I would like to create more instructional videos and online resources to help my students in their learning. I believe that time spent with instructors should be focused on discussion, problem solving and active learning activities.

**Techniques for teaching large courses in a student-centered way**

Increased interest in Computer Science degrees often results in classes getting larger. This is especially true for introductory courses as most students, not only Computer Science majors, will be required to learn basic programming. I am interested in finding better ways to teach large courses in a student-centered way. When students feel that their professor cares about their learning, I believe that they will have a more positive view of the course and better learning outcomes.

**Teaching Computational Thinking**

At the base of programming is computational thinking, a skill that all students need to know regardless of the major. From my experience in teaching introductory programming courses, I have found that programming is not a simple skill to learn or to teach! Programming is hard for many novice learners and requires high cognitive load. I would like to figure out how to teach my students to think algorithmically and break down problems. There is already some research in this area and I am hoping to learn more about it and incorporate it into my courses.