

As a teacher, I have two primary goals for my students: a rigorous theoretical understanding of the material, and the ability to implement and apply the material to real-world problems. These objectives permeate all pedagogical tasks, including introducing and discussing course material, designing curricula and assignments, and interacting with individual students.

My first undergraduate-level teaching experience was as an Assistant Instructor for *General Computer Science* (COS126) at Princeton University. During my discussion sections each week, I reviewed material from lecture with the students. The breadth and pace of the course was challenging—students asked confused questions that indicated that they had missed fundamental principles. In order to master the material, my students needed a more substantial theoretical background. To provide this background, I would regularly re-explain material covered in lecture; then, we would work through practice problems first together and then individually or in small groups. As the students worked independently, I would circulate through the class and unpack questions with those that struggled. Through this process, my students became comfortable with the material and learned to tackle new problems. They felt prepared for assignments and exams only with both theoretical knowledge and practice in application.

My second formal academic teaching experience was as an Assistant Instructor for *Interacting with Data* (COS424), also at Princeton University. This course was well-structured in terms of the activities completed by students, but both instructors and students would have benefited from clearer course goals. Some students were distracted by mathematical details in the readings; clear objectives would have focused their study. As an instructor, these same objectives would have guided me in selecting readings and developing assignments. Learning from this, I created course goals when I designed a summer SAT class; these goals helped me filter through an overwhelming abundance of materials on the subject.

I decided to design and teach an SAT class when I was asked about the SAT by a number of students that I mentored at church. The class had a wide range of students—performance on the first practice test ranged from the first to 97th percentiles. While the diversity in COS126 was less extreme, that class also contained students with a variety of skill levels, interests, and prior experience. With diverse groups of students, the challenge is knowing where to focus, as extremes could easily disengage a large portion of the class. In both courses, going over problems revealed when a student did not understand particular concepts. The first step in addressing these confusions was to ask if other students wanted to learn or review the relevant concepts; if not, I could help the student after class or point to external resources. If the class was receptive, we discussed the concepts and reviewed example problems. Students would also work in groups, either simply learning from each other, or preparing to show the full class how to solve a problem. Group work allowed weak students to be helped by strong ones, and strong students deepened their understanding of the material by learning how to teach it to others.

I find teaching and mentoring to be rewarding; it is one of the principal reasons that I am seeking an academic position. The year after I taught COS126, I encountered one of my students who told me that she had chosen to major in computer science and that I had helped influence her decision; this level of personal impact is difficult to find in other professions. In my experiences as both teacher and student, I have found that the correct balance between theory and application is crucial for learning in any discipline, but particularly important for statistical modeling of data. Each of the two perspective heightens the other, bringing students to a more complete understanding and greater proficiency in application.