The number one challenge for a teacher, to my mind, is reaching the entire spectrum of student interests and abilities. Undergraduates arrive at the first lecture with a variety of educational backgrounds, which leaves them differently equipped, for better or worse, to engage with the material. Course requirements, too, ensure a range of baseline interest that no one in the room controls. Some few students know how to manage these differences, and insert or remove themselves from the classroom conversation appropriately. The teacher is left to prod the stragglers and to soothe the overachievers, ideally (though never actually) satisfying everyone. My greatest teaching achievement to date lies in learning to fan any small spark of interest, however ill-conceived, into at least a small flame of knowledge, while my greatest failing lies in not knowing when to come down hard on a student who could perform better. I have learned how to operate at the low end, and now I need to make my students learn even more.

The two most difficult questions I hear sound like this: “How do I run a \( t \)-test?” and “Wouldn’t this experiment be keener if we had a control group for each independent variable?” These embody the two extremes of knowledge and interest: the hapless statistics novice and the born graduate student. I no longer struggle to suppress my irritation that a research methods student cannot remember simple statistics – I take the opportunity to reteach the lesson, starting by asking the student to tell me why we would run a \( t \)-test in the first place. Both of us are often pleasantly surprised to find a solid conceptual understanding that needed only a real-world application. Letting the student take the lead on hypothesis-development also fans the spark of interest in a personally-relevant project, instead of an arcane, stale textbook example.

The advanced student requires a different touch, because he or she does not need units of information so much as methodological guidance, and expresses interest out of personal inquiry instead of point-acquisition. The step-by-step \( t \)-test style answer does not work as well, and here I opt for a dialectic approach. Again, much of the time students like this find they know the answer already, and want only confirmation to avoid pitfalls. Their increased capacity also allows me to gesture toward other information less directly relevant to the class, but more relevant for success after college.

As I say above, the difficulty lies in spanning the gap between these two types of students. Beginning students can also use broader-reaching advice, and advanced students do not always have the mastery they project. In a typical lecture setting, the teacher answers one student’s question in front of the entire class, and must tailor the response on the fly to fit the needs of the moment. To make matters worse, no student will fall strictly and forever into one category or another, and few questions have easy answers. My strategy changes based on circumstance, but generally I try to hit both ends. I offer an explanation of the background and details for students who lack them, and synthesize and expand both for the students who know already and need more, as well as those quick enough to keep up. I also try to leave just enough unspoken that anyone even slightly interested has to spend some mental energy to complete the puzzle. Students take to this strategy, and by the end of the semester more and more of them ask questions in class that lead to very fruitful, though seemingly off-topic, discussions, even those who seemed uninterested at the beginning.