

TEACHING STATEMENT

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As a graduate student at the University of Utah, I have taught several courses in a wide variety of situations. From a 160-student College Algebra course, to a 7:00 am Calculus I course, to a 5-student section of Business Calculus, each semester has brought new experiences and challenges. There are, however, two common themes that run through all of the classes that I have taught: utilization of active learning techniques, and encouragement of class participation.

Active Learning

I have used active learning tools in all of my classes for a variety of reasons. In lower-level classes (college algebra and trigonometry), I try to identify the areas in which students are more likely to struggle, or need more hands-on experience, and design one or two classes worth of small group worksheets and packets of notes. For example, I find that students often struggle with logarithmic functions, and my lesson has two parts: a structured packet of fill-in-the-blank notes, that we fill out together, and a packet of problems which they work on at different points during the class. The notes give them a reliable reference to study from, and doing problems during class allows them to apply the rules and definitions immediately after I explain them.

In calculus and statistics classes, I use active learning to help students understand longer problem-solving processes, such as significance tests, related rates, and volumes of solids of revolution, to name a few. Especially for topics which require synthesizing several techniques or applying a longer process, I will usually present a short (5-10 minute) overview of the strategy, do one or two examples, and use the rest of the class period for students to work on problems in small groups, while I circulate through the room and help nudge them in the right direction. I find students have more success if they apply their own analysis to determine what techniques to use, rather than observing my analysis or thought process.

Class Participation

Several of the courses I have taught have been at the precalculus level. In addition to often being large sections, these classes carry the added challenge of being at least partially remedial. In all but a few cases, the students have seen the material previously (usually in high school) but have placed into the course. Consequently,

many students have misconceptions about topics that are covered in the class which must be addressed. I am constantly asking questions of the class, especially while working out examples (“What are the roots of this polynomial?”, “What do we get when we multiply the equation by 4?”, “Is it okay to divide the equation by $x - 4$, or do we need to be careful about something?”, and most commonly “What can we do next?”). This will often bring previous misconceptions (especially those which students are fairly confident in) to light quickly, enabling me to address them during class. I also find that with such a high frequency of questions, students are more willing to answer, and even to ask questions or engage in a conversation about another student’s answer, which often allows them to recognize and remedy their own mistakes, and helps me to gauge the level of understanding of the class as a whole. I prefer not to put students under pressure by calling on them, but in classes where a small group of students dominates the discussion, I try to encourage other students to contribute by saying something like “Let’s hear from someone who hasn’t spoken up today,” or “We all know Ben knows the answer, would anyone else like a chance first?”

In order to effectively implement active learning and class participation in my courses, I need to be well prepared for class and two steps ahead of my students throughout the semester. In return, students seem to engage the material more willingly and communicate with me openly and frequently throughout the semester. I have found that utilizing active learning techniques, and fostering class participation create a positive experience for both myself and my students.