

Teaching Statement

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Introduction. As a teacher, my primary focus is to help my students learn in a safe environment. I try to create an atmosphere where students are comfortable to ask questions and give incorrect answers. My mantra is that if you never make mistakes then you are in the knowing stage not in the learning stage. I always tell my students that you learn from making mistakes. I strive to keep my students actively engaged and to encourage participation. I have crafted my teaching methods and style based on scientific evidence, experimenting, and student feedback.

Lectures. For lower-level classes, I divide my class time almost equally between traditional lectures and active learning. I start by introducing concepts and solving problems, not always in that order, however. Often I start by trying to solve or reason my way through a simple example, and then I introduce the general concept or method. During my traditional lecture time, I go through great lengths to keep my students engaged. For example, I always type up all my definitions and examples beforehand. One reason I do this is to avoid long awkward silences while I would need to write down sometimes long word problems. My experience has been that when students have to wait for the instructor to write down a question, they begin to lose focus. Once the students have lost their attention, it can be quite challenging to get it back. Another vital benefit I get is the employment of a document camera. I display the printed out problems on a projector and write the solutions without ever to have to turn my back on my students. Not having to turn away from my students, allows me to be in constant eye contact with my students while I am solving a problem. In my experience, as it is supported by empirical evidence, the more eye contact I make with my students, the more they stay engaged and focused. Furthermore, it also allows me to detect earlier when a student gets confused or needs more explanation. I post these notes on Canvas (our learning management system where all course materials are posted) before class so students can print it out and follow along if they wish to do so. I also scan the filled in notes after class and post them so students can always go back and reference them.

Active Learning. After I have done several problems, I pass out worksheets and encourage students to work in groups. While the students work on the worksheets, I go from group to group and facilitate discussion as needed, help them to realize a mistake they may have made, encourage each member to convince the other group members to their point of view when there is disagreement, or simply offer approval when they do get it correctly. I am cautious not to force students to work with other people if they really don't want to. I am aware that some students may suffer from severe anxiety and forcing them into uncomfortable social situations can do more harm than good. I do however push them to try to work with other students. Besides the benefit students get from active learning, I get the benefit of seeing firsthand how well my class understood the concepts, and if many are making similar mistakes. Traditionally, I would need to wait until a quiz or exam to notice that. Being able to recognize gaps in my students' understanding allows me to correct it immediately. Sometimes I will interrupt the worksheet and explain a concept more if I feel there is a need to do so.

Worksheets. I usually try to organize my worksheet to build up from simpler problems to more complicated problems. Often, I would put a problem that may be counter-intuitive or a point of caution that I have not covered in class yet. For example, when I teach about percentages, I put on the worksheets a 4-5 step classic problem of batting averages. In both 1995 and 1996, David Justice had a better batting average than Derek Jeter. However, over the span of the two years, Jeter had the higher batting average. I do not explain this beforehand. I make them compute all the batting averages and discover, to their bemusement, that the higher batting average is not what they expected. Then, after they have done all the work, I spend some time explaining this phenomenon of sample size issues and why one should not average averages. I do a similar thing with shifting reference values when dealing with relative change.

All my teaching policies and method are crafted towards creating a safe, welcome and inclusive learning environment. I always let my students know that I am there to help them learn and I will make every effort to accommodate any needs they may have. I want my students to feel they can learn and ask questions without being pressured or judged.