

Tips, Tricks, and Tactics for Terrific Teaching

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It is a pleasure to pass on some tips and techniques that I have garnered over many years of teaching optics. At the Wyant College of Optical Sciences, I taught only graduate students and never had a class larger than 20.

My first suggestion is to never teach a class larger than 20. That allows you to get to know the students and allows them to participate without restraint. You may have to argue with the Dean, but there is always a next semester.

My second suggestion is to work out problems in class. Assign one and several classes later attack it in class. Make sure you have considered all of the solutions and approaches first. This can even be done with the more-theoretical classes, like diffraction theory or quantum optics (although I never had to).

My third suggestion is to give oral exams, especially to graduate students. These exams prepare them for their real oral exams. They are also a means to learn how much a student really knows. You cannot filibuster during an oral. When you give oral exams, you must rely on the honor system so that you can ask everyone the same questions. Take notes as you get the oral answers. This has the advantage for students that, a few hours after the last question is posed, the results are known. I have done this, and it works!

My fourth suggestion is to introduce humor. Although optics is a fascinating subject, a joke or witticism now and then helps the medicine go down.

Finally, introduce mnemonics of some sort where you can. I discussed “seven deadly noises” and introduced the mantra “think of everything” in my radiometry class.

Thank you, John, for all your help with ancient instruments.