

Teaching Philosophy – Taylor Lewis

Since taking on my first adjunct professor role at the university level in 2015, I have yet to stop enjoying the process of developing and delivering a statistics course. No matter how simple or how complex the subject, my goal is to have students leave the course with a deeper understanding of what I view to be the most essential techniques and concepts – those that extend beyond the current course. It is my belief that when too much material is packed into a course, students become prone to enter into a “survival mode” of sorts in which they selectively learn only the portion of the material they deem absolutely necessary to get through the course. In general, I prefer to focus on the quality of edification over the quantity, with an aim to have students learn to think like a statistician rather than to learn to follow prescribed rules for how to solve problems.

One strategy I use to promote this type of learning environment is to methodically break down complex statistical concepts into fundamental, accessible building blocks. I refrain from going over particularly detailed derivations during class time. Instead, I reference textbook page numbers or other sources for the curious student to consult during his or her own time. I abide by a similar policy for proofs. Only the most relevant are presented, and I often leave the solution task to the student at his or her own pace as part of a homework assignment. Another frequently used strategy is to present solutions via alternative, albeit computationally equivalent, methods, formulas, and/or software. I believe demonstrating how a problem can be solved in more than one way helps foster a deeper understanding for how many statistical methods are interrelated. Doing so also helps promote problem-solving confidence. The student is free to employ the method the student is most comfortable with, and any lingering uncertainty can be eradicated by checking one’s work against one of the alternative methods. Yet another simple strategy I employ is to begin each class by quickly reviewing where we currently reside within the overall course schedule. Regularly revisiting the course roadmap instills in students a solid handle on where we have been and where we are headed, in effect reinforcing the overall “story” being told as the course progresses.

In addition to a steady dose of computationally-oriented tasks, where appropriate, I ask students to reflect on the results of statistical quantifications and conclusion made. This can take on several forms depending on the context. Sometimes it is to paraphrase the takeaway message of a significance test within the context of the problem, other times to indicate whether or not comparisons made are in line with expectations, or occasionally to articulate an argument for one side of a question with two or more plausible answers. I believe these strategies are important to develop sound “statistical sense” and enhance the associated critical thinking skills necessary to solve many real-world problems.

For graduate-level classes, I am fond of assigning scholarly readings that serve to either exemplify core course concepts being applied in a real-world setting or illustrate how techniques discussed in the course have been modified or extended to answer different, yet similarly motivated, research questions. To ensure students complete the readings and glean out the main points, I typically ask them to take a short, timed reading comprehension quiz given in either multiple choice, true/false, or fill-in-the-blank format. With respect to testing students on their wholistic understanding of the course material, I generally follow a model whereby an in-class midterm is given approximately one-half of the way through the course, and a cumulative, take-home examination is given at the end of the course. Although both are open notes and/or with a formula sheet, the timed nature of the in-class examination allows me to ask different types of questions than the take-home format. For any assignment or examination, in lieu of posting solutions, I provide the student detailed feedback, electronically, on my grading decisions, within one week.