

Teaching Pays Many Dividends:

Teaching allows me to return to the basic, relatable elements of economics that are easily lost when diving deep into a PhD. I enjoy teaching because each time I revisit the fundamentals, I rebuild my understanding of my own research and remember why I became interested in economics in the first place. I see teaching as an invaluable opportunity for professional and personal development. For the past four years, I have shared my thoughts in a workshop that I organize for my department. My goal here is to convince new TAs that teaching is just as rewarding an experience as research and not merely a source of funding. I try to pass on my enthusiasm to the other graduate students.

I think great teaching involves adapting to the evolving preferences of the student body. During my first instructor role, I asked my students to fill out a survey early in the class. This survey provided valuable feedback that I used to improve my lectures and homework design. I was relieved to find most students preferred my move to a tablet/projector setup. This allowed me to always be facing my students and more easily facilitated dialogue. I also used the survey as a self-evaluation tool; students acknowledged what they could be doing to improve as well. Facilitating this evaluation exercise was easily one of the healthiest and rewarding things I've done as a grad student.

My primary teaching goal is to inspire critical thinking. I value this skill more than any other because it provides the backbone for success across all fields and encourages a disciplined, thoughtful type of learning. This objective can be challenging, especially in the face of the student who may not want to think about *why* a ball rolls downhill, but simply which equations they need to memorize to pass an upcoming test. However, I believe that the typical economics course provides many opportunities to promote reasoning over rote memorization, and I try to design assessment that makes critical thinking as incentive compatible as possible. In my econometrics class, it was necessary for students to understand the mechanics behind statistical inference, but paramount that they craft the story that justifies the validity of the statistical work (like in good applied research). I love seeing someone's creativity manifest; the payoff for me is huge whenever a student just nails it.

Office Hours and Exams:

Office hours are an integral part of the learning process and I encourage attendance and other help-seeking behavior as soon as any material starts to feel challenging. In my classes, I stress the importance of in-person contact and prioritize this in my schedule. I also organize small-group study sessions before each exam and create more discreet meeting opportunities for those who want them. When I see students who are struggling but still refrain from going to office hours, I make an effort to establish regular contact—a high ROI investment. This keeps students from falling in to the harmful cycle of “don't know what's happening, don't know what to ask, didn't ask anything.”

I don't give answer keys, instead, I provide an opportunity to learn from past errors through discussion, either in class or in office hours. Despite the increase in difficulty, most students appear to approve of this in their reviews, often writing that they “actually learned” something or formed better study habits. Using my mid-term survey, I found that there were large returns to office hour attendance. Upon review, the class found that the performance increase came from the discussion of the additional study materials that I would prepare before each exam. My exams were not designed to be surprising, and those that made an effort to look at these extra problem sets were far more inclined to agree with this statement (and appreciate my incentive scheme).

Student Welfare:

I am invested in the welfare of my students and I encourage them to talk to me if they ever feel overwhelmed. As a student, I frequently found college to be stressful, and this drives me to be available and provide support for my students. At UC Davis, I've taken several mental health training courses in order to better comfort my students and connect them with the resources they need, and I've persuaded other graduate students to go through the same training.

I maintain contact with some students after a course has ended. There are always a few students who are interested in continuing their studies, and I'm happy to share additional resources and ideas to help them explore their interests. I've matched students with professors for undergraduate research and written recommendation letters for students in my econometrics class as well. Recently, I sat down for tea with a student who had used what she learned in my econometrics class to get a data analyst job in Sacramento. I'm thrilled that my course made a lasting impression.

Undergraduate Econometrics Philosophy:

In Summer 2018, I taught ARE 106: Econometric Theory and Applications. Rather than using the bank of resources available to me, I chose to build the class from the ground up, because I believe that econometrics education has been in need for an overhaul since I was introduced to the subject. I am heavily influenced by Joshua Angrist and Jörn-Steffen Pischke's *Through Our Classes, Darkly*,¹ and I ultimately used their book² as the main reference for my course. As they say in their paper, "Good econometric work is different from other data sciences because it involves *clear, causal thinking*." This is what I'd hope to see emphasized in undergraduate econometrics classes. In my class, I tailored my material to the interests of the students and contemporary econometric work.

Regression is no more than a tool for controlling confounding factors. Economists use this tool to isolate causal relationships between variables, and a good course would help build a deep intuition for when regression can be used and how it provides valid estimates of causal effects. In my class, I take a design-based approach (regression discontinuity, difference-in-differences) instead of focusing on technical problems (heteroscedasticity, serial correlation). This isn't to say those problems aren't important, but to spend so much time on them in an introductory class is a disservice to the budding statistician. Real econometric work is so much more than a bit of statistics and algebra, and we should be sharing the satisfaction of generating creative research with our students.

I think that it is important to introduce a programming element to the course, as long as the reporting of results is paired with careful analysis. When I ask my students to interpret regression results, I pair this question with another: "does this relationship have a *causal* interpretation?" I want my students to consider that a computer computes regardless of the context of its inputs. It is easy to teach students a few commands in STATA, enabling uninformed, robotic application of the program; the last thing I want to see is a student interpreting *any* correlation as a causal effect. I spend time in my class explaining that not all covariates are created equal. "What have we done to control for the *control* variables?" was a common refrain; "Have we fixed the problem of omitted variables bias here?" In the same way we hope for the public to read beyond the title of a news article, it is imperative that our students reflect on how they have arrived at their empirical results.

¹Angrist, Joshua D. and Jörn-Steffen Pischke. 2017. "Undergraduate Econometrics Instruction: Through Our Classes, Darkly." *Journal of Economic Perspectives*, 31 (2): 125-44.

²Angrist, Joshua D. and Jörn-Steffen Pischke. 2015. *Mastering Metrics: The Path from Cause to Effect*. Princeton University Press.