

# TEACHING STATEMENT

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## TEACHING PHILOSOPHY

Teaching is central to my role as a faculty member and goes hand in hand with my research. My research shapes both the philosophy and content of my teaching, while my teaching motivates me to explain complex econometric ideas clearly and intuitively and to stay engaged with new advances across the field.

The cornerstone of my teaching philosophy is that effective teaching begins with seeing the material from students' perspectives. This idea leads to two central aspects of my teaching: keeping lectures current and encouraging "slow thinking." In most of my courses, I refresh some lectures every year. For example, in ECON 570 in Spring 2026, I updated the lectures on neural networks and added a new lecture on the transformer architecture, which had not been included in any section of the course. These new materials bring students closer to the frontier of the field and make the courses more exciting. In theoretical courses, I exclusively write on the blackboard to slow myself down and explain every step of the proof clearly and intuitively. Rather than covering a lot of material, I prioritize explaining the key concepts thoroughly. My exams similarly emphasize the concepts that I hope students will find useful throughout their careers.

## TEACHING EXPERIENCE

I have taught courses at the undergraduate, master's, and PhD levels, ranging from introductory econometrics to advanced theoretical and applied courses. At the University of Southern California, my teaching includes these courses:

- ECON 460 (Economic Applications of Machine Learning): Fall 2023
- ECON 570 (Big Data Econometrics): Fall 2023, Spring 2026
- ECON 611 (Probability and Statistics for Economists): Fall 2026
- ECON 691 (Seminar in Econometrics): Fall 2026, Spring 2027

ECON 460 is an advanced undergraduate course that introduces students to big-data, or high-dimensional, methods in economics. ECON 570 is the master's version

of ECON 460. Topics include sampling, linear and logistic regression, fundamental concepts in machine learning (cross-validation, regularization, and the bias-variance trade-off), LASSO, classification, causal machine learning, regression trees and random forests, unsupervised learning, natural language processing, neural networks and deep learning, and transformers. The main distinction between these courses and courses with similar names in other departments is their emphasis on interpreting the outputs of machine learning from economists' perspectives. From the first lecture, I use simple examples from daily life and real examples in economics research to explain the difference between prediction and causal problems. Machine learning methods can be used for both types of problems, although they often need to be modified to study causal problems. My teaching has been observed by my faculty mentor, Timothy Armstrong, in ECON 570 in Spring 2026.

On the practical side, students gain extensive hands-on experience with machine learning methods by coding in R. Building on and extending materials from previous iterations of the courses, I prepare lecture notes that combine exposition with R code to help students learn. In lectures, I focus less on the technical details and more on the intuition behind key concepts such as the distinction between prediction and causal problems and the importance of out-of-sample validation. I complement the lecture notes with writing on the board to provide simple examples that help students understand complicated concepts. I explain the R code in detail to make sure students follow the implementation, especially in the first half of each course. I design the problem sets to help students first learn to adapt the code from lectures and then write their own code. I encourage the use of search engines and AI as learning devices while emphasizing assignments must be students' own original work.

ECON 611 is the first course in the first-year PhD sequence in econometrics. It introduces students to basic concepts in probability and statistics and prepares them to learn more advanced tools in econometrics. I balance two main learning goals in preparing the course: building a rigorous foundation in probability and statistics and developing an intuitive understanding of major econometric issues in empirical research, especially causality. I have therefore modified the course, which has historically placed greater emphasis on theory, to include a substantial section on causality and the potential outcomes model.

I also teach ECON 691, seminar in econometrics. With input from my colleagues, I curate a speaker series that brings scholars from leading institutions to present research across a wide range of topics in econometrics, serving the interests of both faculty and students in the field.

	<b>Course Design</b>	<b>Instructional Practices</b>	<b>Inclusion Practices</b>	<b>Assessment Practices</b>	<b>Course Impact</b>
ECON 460 (F23)	3.73	3.70	3.81	3.73	3.88
ECON 570 (F23)	3.65	3.65	3.67	3.63	3.60
ECON 570 (S26)	4.00	3.94	4.00	4.00	3.89

Table 1: Summary of teaching evaluation at the University of Southern California (out of 4.00).

During my three years at the University of Michigan (2020–23), I taught three different courses:

- Economics 672 (Econometric Analysis II): Winter 2021, Winter 2022, Winter 2023
- Economics 677 (Applied Econometrics II): Winter 2021
- Economics 678 (Advanced Econometric Theory I): Fall 2021, Fall 2022

Economics 672, Econometric Analysis II, is the second course in the econometrics sequence for first-year PhD students in economics. The goal of this course is to introduce students to essential econometric methods, mainly linear regression, that they will rely on heavily in empirical research. I focus on helping students understand the distinction between descriptive and causal interpretations of the linear regression model. Economics 677, Applied Econometrics II, is the second course in the applied econometrics sequence for second-year PhD students. Economics 678, Advanced Econometric Theory I, is the first course in the econometric theory sequence for second-year PhD students. The material in these two courses overlaps substantially. Both courses introduce students to more advanced econometric techniques than those they learn in the first year and prepare students who aspire to specialize in econometrics for more technical research in the field.<sup>1</sup>

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<sup>1</sup>Teaching evaluations at the University of Michigan are not clearly labeled as at USC, so please refer to the teaching evaluations directly.