Teaching Statement

As an educator, my goal is to equip my students with the knowledge and skills they need to perceive and explore the world rationally and critically, particularly in today's information-rich environment. To achieve this, I strive to help my students not just acquire knowledge and learn concepts to answer exam questions correctly but apply those concepts and skills in their individual lives and the world around them. Ultimately, I hope my students can develop a holistic understanding of the world, and become active, informed citizens who are equipped to make a positive impact in their communities and beyond.

Over the course of my five years of teaching experience, I have been working hard to create an effective and inclusive learning environment that meets the needs of students from diverse backgrounds. This effort is reflected in the steadily increasing scores on my teaching evaluations for the five undergraduate and graduate courses that I have taught, as shown in Table 1.

Table 1. Summary of Teaching Experience and Effectiveness.

Course name	Level	Role*	Offering year(s)	#Students (avg.)	Evaluation(s) (/5)**
Managerial Economics	UG	TA	2018, once	43	3.9
Intermediate Microeconomics	UG	TA	2018, once	60	NA
Financial Management of Firm	UG	TA	2019, twice	45	4.1 → 4.5
Time Series Econometrics	Ph.D.	TA	2019, 2021	13	4.6 → 4.9
Econometric Theory and Applications	UG	TA	2022, twice	48	4.0 → 4.4
	UG	AI	2022, once	35	4.8***

Note: *TA and AI represent the positions of "teaching assistant" and "associate instructor", respectively. **The evaluation scores reflect students' average assessments of my overall teaching effectiveness in each course. ***According to the summary report here, 25 out of 35 students did the evaluation, i.e., the response rate is about 71%.

In the following, I would like to highlight the teaching and pedagogical strategies that I employed in my most recent teaching experience, specifically in the course *Econometric Theory and Applications* that I taught as an associate instructor in 2022. These strategies were highly effective in engaging students and facilitating their learning. I believe that they are representative of the teaching approach that I bring as an instructor who is committed to promoting student success.

The course and students

Econometric Theory and Applications is a high-level undergraduate course. Students enrolled in this course must meet the prerequisites in economic theory and statistics. However, I had a diverse group of students with varying backgrounds and prior learning experiences with these prerequisites. More than one-third of them transferred from community colleges; some others were returning students, part-time workers, or parents. One returning student even had two off-campus jobs and a baby at home to take care of. As a result, some students found it difficult to understand the theoretical components of the course, particularly regarding math and statistics. Some students simply did not have enough time to study.

This course also requires using the statistical software R to conduct regression analyses as part of homework assignments. This requirement is supposed to help students build application skills that are highly transferrable in both academia and industry. From my previous experiences as a TA in the same course, I had learned that students often struggle with R. Thus, to plan and better understand students' needs, I conducted a background survey at the beginning of the instruction session. It showed that over 60% of students had never used R before, and 20% of students had never heard of R. The survey helped me get a head start and better prepared me to help my students.

Teaching methods and their effectiveness

Flexible Assessment: Students may perform poorly in some assignments or one exam simply because of stochastic bad health or mental conditions. This was not uncommon in my class, e.g., more than one-fourth of students had been infected by Covid or other diseases during the one and half months. Thus, I gave flexibility to students when assessing their performances. The assessment consisted of three parts: (1) real-time lecture quizzes, (2) weekly homework assignments, and (3) one midterm exam and one final exam. I allowed students to drop the lowest one-third of their scores on part (1) and drop one-fourth of the score on part (2). Many students took these options due to either Covid infections or lack of time. I also allowed them to make up a lower score in the midterm with a higher score in the final. As expected, most students who performed poorly in the midterm did perform better in the final. This flexibility in assignments was not only helpful during the pandemic but at all times as it gives students multiple opportunities to perform in the class with the help of formative assessments.

Multilayered Assistance: As I mentioned earlier, many students needed help with using the software R for data analysis in the *Econometric Theory and Applications* course. To assist their learning, I first provided them with step-by-step guidance on how to install the software and set up the user interface of the program using a short YouTube video. Then, in each lecture I introduced a couple of basic R commands using concrete-but-simple examples. Once the students were familiar with the new commands, the TA showed them how to apply these R commands in more detail and interactively coached them during each discussion session. I also showed them how to apply these new R commands to one question for each homework. With this multilayered assistance, most students became comfortable with the tool. Students who still needed extra help were welcome to come to my office hours and got clarity on the syntax of R commands and their applications. Compared with previous students in the same course, students in my class performed better on the exams which tested their abilities to use R commands and the associated outputs to answer application questions. The end-of-course survey responses also revealed that the students were more confident in using R for basic statistical analysis like Linear Regressions. In general, I think that this type of multilayered assistance is often needed to help students build up their application skills.

Daily-life Examples. It is a very notion among students that they are not good at Math or Statistics and that these types of courses like *Econometric Theory and Applications* are hard. To overcome these inherent biases among students and to make my class fun for them, I constantly used daily-life examples to illustrate "difficult" topics. As an example, the concept of hypothesis testing is often considered very abstract by students. To illustrate this concept, I used the example of whether or not a driver is a good driver given the data i.e., the one-month driving history of the driver. The data indicates that the driver had one accident during the one-month period. Almost all the students immediately understood that the driver is unlikely to be a good driver. The real-time lecture quizzes helped me confirm their understanding of hypothesis testing. By connecting course content to daily-life examples, I believe that students will be more invested in their learning and be more motivated to apply what they have learned in their individual lives and communities.

Awareness of Social Issues: In any data-analysis course like *Econometric Theory and Applications*, teachers will introduce students to various types of variables in the data like the dummy variable. It can become so much more interesting for the students if the instructor ties up that data concept with a concurrent social issue. To introduce the dummy variable, I raised the social issue of gender inequality in income and then showed them how regression analyses are run on data that has both male and female respondents, and those constructs must be replaced with a dummy variable, such as one with a value 1 for female and 0 for

male. Students expressed their sincere curiosity and engagement not only on the topic of gender income gaps but also experienced an 'A-ha" moment of why dummy variables are needed to analyze different data to extract meaning and draw conclusions.

Since the students were so interested in this topic, I took it a step further by adding the foregoing gender inequality example for their homework, where they had to explore the different reasons behind gender inequality in income. By thinking through these reasons in a specific context, they were able to understand the concept of variable interactions, e.g., the female dummy variable interacted with years of education. Intriguing students with social issues and providing them with tools on how to investigate such issues with the power of statistical skills suddenly added more value and relevance to the course and students were more engaged in their learning.

The conclusion and courses to teach in the future

Overall, I appreciated the effort and enthusiasm that my students and TA put into this class. Thanks to our close cooperation, we successfully built an effective and inclusive learning community for this course. I listed some of the students' representative comments on this course below for reference. After the final exam, some students sent their best regards to me. Several of them even decided to apply for graduate programs in economics or related fields and invited me to write recommendation letters for them.

I look forward to teaching econometric courses like *Econometric Theory and Applications* and similar courses like time series econometrics and program evaluation methods as I continue my teaching endeavors. I am also qualified for and look forward to teaching intermediate microeconomics and undergraduate finance, given my teaching experience and educational background in economics and finance.

Appendix: Some comments from my students on the course *Econometric Theory and Applications*.

[1] *The professor and his kindness and teaching skills.*
[2] *The professor is always trying to help the students learn better.*
[3] *The concepts were on the difficult side, but the professor made it easy to understand.*
[4] *I appreciate that Professor Gong understands the difficulty of the course and makes an effort to do a quick review at the beginning of most classes. It helps me feel prepared for the new material that we will be learning that day.*
[5] *I enjoyed the way to class was laid out. I the lecture quizzes helped my understanding a lot.*
[6] *The flexibility.*
[7] *The hw and grading seemed very fair.*
[8] *The homework and exams for this course are related to the lectures.*
[9] *Learning to use R studio.*
[10] *I really liked how the discussion examples and homework applied the lecture material to a real world example and showed me how to use R to find the information. I wish there was a way to have more examples that we could apply, but knowing this is a summer session it would be extremely hard to fit more examples in. Maybe extra practice if a student wants to go over additional examples.*

Note: You may see more comments in the summary report here.