Teaching Statement

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I have had the privilege of teaching a wide range of economics courses at both the undergraduate and graduate levels, including Principles of Microeconomics/Macroeconomics, Intermediate Macroeconomics, Introductory Econometrics, and core PhD courses (full macro sequences and game theory). My teaching philosophy is centered on two key objectives: starting with simple, intuitive examples and developing economic thinking. I adjust my strategy of delivering course materials when class sizes are different.

Large-size Lecture As a Head TA for Principles of Microeconomics/Macroeconomics, which usually includes about 400 students, keeping the students engaing is the most difficult part, but an **implicit interaction** with them should be the key. For example, when they learn the types of unemployment, I ask students whether they have similar experiences, providing my personal experience first. There will be no replies, but they come up with an example in their head. This at least creates a curiosity which will keep them focused on the lecture.

To introduce any new concept, I always start with the most relatable, real-world example I can find. At Iowa State, where many undergraduates have a background in agriculture, I teach 'externality' by using the example of spraying pesticides. We discuss the potential negative externality, like chemical harming a neighbor's crops, and the positive externalities, such as reducing the overall pest population in the area. This approach, which connects theory directly to students' experiences, helps them to grasp the concept more and develop their own critical thinking. I deeply enjoyed discussions and **explicit interactions** with students because they in turn teach me about the practical realities of farming - details that I would never know if I weren't in the field.

For the large-size lecture, I try to build an **implicit interaction** during the lecture by providing the simplest and easiest examples possible. This brings students who want to understand better to my office hours from which **explicit interaction** is made. This is the way I handle the large-size class and has been useful.

Small-size Lecture When the class size is less than 20 students, the way of conveying the lecture should be different. To maintain a fluent and have a well-prepared lecture, an instructor should not skip so many details. At first glance, students will not notice the missing steps right away, creating a large distraction and lose track, especially for the undergraduates. In this case, I focus on building **explicit interaction** first by asking them if they fully understand the argument. It could be mathematical reasonings or connecting the theory to their personal experiences. If any confusion exists, I pause and discuss more in detail.

I have found this teaching method to be highly effective as a TA - for both the students and myself - across various courses, including Intermediate Macroeconomics, Introductory Econometrcis, and core PhD courses. For example, the Intermediate Macroeconomic course was redesigned

to combine general equilibrium models with practical training in Python. I taught students how to access FRED data, calibrate the model, and wrote all Python codes for problem sets and midterm. Even with everything provided, many students were discouraged and struggled to follow the code until I went through it line-by-line. Through **explicit interaction** in and out of the classroom, I realized many intermediate steps were confusing them. In response, I simplified the code which allowed students to use the computer as a tool to understand the economic model instead of focusing on technical details.

The same principle applies to PhD-level courses. While PhD students are necessarily more independent, I have found they deeply appreciate a TA who are willing to thoroughly reviews the 'missing steps' or assumptions in the model. This **explicit interaction** often sparks in-depth debates and discussions that clarify my own intuition and have even helped me think of new research questions. I see my role as bridging the gap between their independent study and the main lecture. By doing so, I help them build a stronger **implicit interaction** with the instructor, incentivizing them to engage with the material at a higher level.

For the small-size lecture, **explicit interaction** comes first which creates **implicit interaction** afterwards. It is unrealistic to think that all students are as much as exited to economics as instructor. Therefore, keeping them engaged throughout the semester is the key to the success of teaching at a college level. During my graduate school, I found this approach is an efficient way of constructing the lecture and managing the students.

Future Agenda My main teaching interests lie in the field of macroeconomic theory and its application. At the undergraduate level, I would be exited to teach principles of macroeconomics, intermediate macroeconomics, and advanced topics in macroeconomics including economic growth. On the graduate level, I would teach macroeconomic theory and computation tools to solve macroeconomic models with micro data.

Given the rise of high-performance computing and machine learning, it is becoming essential to teach students how to apply these techniques in economics, particularly solving large-scale macroeconomic models. I have prepared for this shift. I took a Workshop on AI and Machine Learning at Iowa State, where I learned the basics of neural networks and use them to solve canonical problems. This includes solving a simple optimal growth model to complex heterogeneous agent models with aggregate uncertainty - models that traditionally rely on Krusell-Smith algorithm.