Teaching Statement

Ke Chao[1]

My teaching philosophy is based on effective teaching. For me, effective teaching includes two dimensions. The design of content and the method of delivery. More specifically, I believe that the content should be adapted to students and the knowledge should be delivered in efficient methods.

Content Design

From my understanding, the content design should based on the nature of the course and the learning process of students.

The meaning of the word "effective" can differ conditionally on the nature of the course. There exists some research oriented courses in which students are looking for exposure to profound knowledge or frontier research. Effective teaching in this case emphasizes the combination between the in-depth introduction of cutting-edge studies and the progressive stimulation of students' research interests. There are other courses aimed for a professional education program, where students are seeking to advance specific skills or to improve particular techniques. In this situation, my main objective is to provide necessary materials and adequate guidance for students' success in building professional knowledge.

I have experiences in effectively teaching both types of courses. I served as the teaching assistant for Macroeconomics, PhD Core (ECON501, ECON502) for the incoming PhD students in economics or business in 2017-18. In addition to introducing the skills and techniques used in macroeconomics as a complement to the lectures by professors, I prepared the content to expand the baseline model to the frontier researches in a intuitive way. For example, when introducing the dynamic programming in continuous time, I related the growth model to the Mertons portfolio problem to help students build deeper intuitions on the value function and the envelope theorem. In contrast, I changed my teaching style completely for the Fixed Income Derivatives (FIN551, FIN552), which is one of many in a sequence for a profession oriented program in the business school. Although the courses involve complicated models of asset pricing, I carefully avoided the massive mathematical deductions while focusing on grasping the general intuitions of the models and on elaborating the practical details in coding and simulations.

In many cases, the comprehension of the background material and the rudimentary knowledge is crucial for students' success in further studies. Therefore, I believe that effective teaching requires contingently tailoring the materials to match the learning process of the students. When I was a teaching assistant for the Fixed Income Derivatives, the students were required to finish a group project about re-calibrating a pricing model to some new interest rate curves. I was originally responsible for introducing the coding and simulation skills. Yet, during my teaching session, I learned that the background knowledge of students was highly varied. Without a general understanding of asset pricing, many students were dazed by the the amount of data provided by the Bloomberg terminal and confused about the model selection. After receiving feedback, I adapted the materials to better fit the background of the students. Starting with the group project, I gradually related the textbook models to reality and carefully

[1]Contact: k.chao@wustl.edu. Personal Website: https://kechao.weebly.com

explained the intuitions behind them. Subsequently, the students gained insight into the pricing theory and accomplished the project successfully.

Knowledge Delivery

I believe that the more successful teachers always manage to deliver knowledge efficiently. Efficient teaching contains many aspects. Sometimes, it means to attract the students' attention with thought-provoking questions. When I was learning linear algebra, the professor of the course was an experienced instructor. Instead of directly demonstrating the matrix multiplication algorithm, she provoked us to think about the nature of the vectors' transformation or decomposition. She gradually linked the example to the definition of the transition matrix where every student developed a solid understanding of the nature of matrix algorithm. I absorbed her teaching methods when I was introducing Kuhn-Tucker conditions to first-year PhD students by asking the question, "what is the relation between the contour lines and the derivatives of a concave function?" By gradually linking the examples to the formulas, I found that not only did the students have a better understanding of Kuhn-Tucker, but also the effect of the thought-provoking teaching was persistent. Months later, when I was teaching the Hamiltonian in continuous time, some students related my question before to the Hamiltonian and tried to derived the first order conditions based on those exact intuitions.

Efficient teaching contains other aspects, for example well-organized teaching schedules, notes and clear solutions outside of the classroom. I believe that inside the classroom, the student should focus more on the big picture, while the digestion of the details happens after class. The students need to convert the concepts they are given during class to their own understanding by reviewing and practicing after class. Therefore, efficient teaching also requires that homework and notes should be well-prepared to enhance the foundational understanding of content by providing supplementary details. When I was a teaching assistant for Macroeconomics, I used the smart board to deconstruct ideas during the class. Yet, after class, I always provided the detailed notes to highlight the main concepts. Furthermore, in homework solutions, I emphasize the intuitions mentioned in class by explaining mechanisms the beneath the homework questions.

Teaching Experience

Besides independently teaching Introductory Macroeconomics in the summer of 2018, I have also been a teaching assistant for the graduate level Macroeconomics (Ph.D. Core) and Fixed Income Derivatives. Based on my experience, through carefully designed teaching schedules and homework exercises, I am confident that I can work with students as they encounter difficulties and confusion during their learning process.

I am comfortable to independently teach core courses in undergraduate and graduate Macroeconomics. I would also be happy to teach introductory Microeconomics, and topics courses on money and banking, development and inequality, and financial economics.