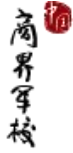# Econ 532
Advanced Econometrics II
4th Module, 2020-2021

Course Information

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Classes:
Lectures: Mondays and Thursdays 3:30-5:20pm
Venue: TBA

Course Website:
Search "Advanced Econometrics II (2021 Spring) (ECON532)" from CMS

1. Course Description

1.1 Context
Course overview: This course is the second part of a two-sequence course in econometric theory. The course deals with econometric methods, theory and applications designed for the analysis of cross-section and panel data models, with focus on identification, estimation and inference. It can be viewed as an introductory course in microeconometrics since the covered methods are most often used in empirical microeconomic research. The main topics include generalized method of moment (GMM) estimation, instrumental variable, panel data analysis, and discrete dependent variable models. Students are expected to master the finite-sample and asymptotic properties of the above methods, implement them in statistical/programming software (such as Matlab, Stata, etc) and real empirical applications.

Prerequisites: Advanced Econometrics I
The course also assumes that students are comfortable with multivariable calculus, linear algebra, and probability theory and statistics. Students should have some basic knowledge of matrix language programming such as MATLAB.

1.2 Textbooks and Reading Materials
There is no required textbook in this course. However, you will find the following popular textbook very useful. Lecture notes will be uploaded in the CMS.

 (W) Jeffrey M Wooldridge. *Econometric analysis of cross section and panel data*. MIT press, 2010

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment (YES with details or NO)
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	No.
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	Yes. Written exam
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	No.
	2.2. Students will be able to apply leadership theories and related skills.	No.
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	Yes. Written exam
	3.2. Our students will practice ethics in the duration of the program.	No.
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	No.
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	Yes. Written exam
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	Yes. Written exam
	5.3. Our students will demonstrate competency in critical thinking.	Yes. Written exam

2.2 Course specific objectives

This course provides an introduction to recently developed microeconometrics designed to meet the needs of students in the economics master/PhD program. By the end of the course, students are expected to know the concepts, assumptions, theorems, proofs and applications of cross-sectional and panel econometrics. Students will be able to analyze real data with advanced econometric methods and computer programs.

2.3 Assessment/Grading Details

Requirements for the course include attending lectures, 4 problem sets, 1 midterm exam and 1 final exam. Since the course is cumulative in the sense that each lecture builds on previous ones, full attendance is required. I take roll several times randomly throughout the module. You will be penalized for each absence unless you obtain my pre-approval. As for problem sets, you are encouraged to work in groups. However, you must turn in an individual solution (Given that this course is offered on-line at least for several weeks, the homework submission should be through email). Plagiarism is strictly punished. Late submission is unacceptable and will not be graded. Some problem sets may contain computational exercises.

The grading of the course can be broken down to the following:

Class attendance and homework	30%	
Midterm exam	30%	June 10 (Thu), 330-520pm, location TBA
Final exam	40%	July 10 (Sat), 4-6pm, location TBA

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.
For more information of plagiarism, please refer to *PHBS Student Handbook*.

3. Topics, Teaching and Assessment Schedule

This plan is tentative and subject to change.
Lecture 1-3
1. Estimation methods: (W4, 8, 13)
1.1 Least squares (OLS and GLS) estimation
1.2 Maximum likelihood (ML) estimation
1.3 Generalized method of moments (GMM) estimation

Lecture 4-7
2. Instrumental variables: (W4, 5, 9, 14)
2.1 Endogeneity problem
2.2 IV estimation
2.3 2SLS estimation
2.4 GMM estimation
2.5 Useful tests

Lecture 8-13 (Lecture 10: Midterm exam)
3. Panel data analysis (W10, 11)
3.1 Static analysis
   3.1.1 Random effect model
   3.1.2 Fixed effect model
3.2 Dynamic analysis

Lecture 14-18
4. Discrete dependent variables (W15)
4.1 Binary choice model
4.2 Multinomial choice model

4. Miscellaneous

It will be challenging to have a meaningful and effective interaction during online lectures. But I still I strongly encourage you to ask questions during lecture time and office hours. If you have special needs to reach me outside the lectures or office hours, you may email me. I will try to respond to your email in two business days. If you don't get my response within two business days, please send me a reminder email. When you email me, please prefix the subject header of course code [AE II] in order to make your email too conspicuous to miss it. In addition, given that there is no face-to-face interaction, it will be difficult for me to recognize you. Since I want to remember as many students as possible, please help me by emailing me a brief self-introduction with a photo by the end of May, so that I can better remember you.