

ECON532

Advanced Econometrics II

1st Module, 2020

Course Information

Instructor: Yaein Baek

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Office Hour: Wed 10:00-11:00

Classes:

Lectures: Mon & Thur, 15:30-17:20

Venue: PHBS Building, Room

1. Course Description

1.1 Context

Course overview: This course focuses on topics in time series analysis, in addition to reviewing probability theory. Students will learn methodologies used in time series data and forecasting, which is essential in analysing financial and macroeconomic data.

Prerequisites: Advanced Econometrics I (ECON530)

1.2 Textbooks and Reading Materials

There are two required textbooks for this course. They are *A Primer in Econometric Theory*, 2nd edition by John Stachurski, and the textbook by Lars Hansen and Thomas J. Sargent (forthcoming). Other textbooks that are used for reference are as follows.

Hamilton, J.D. (1994). *Time Series Analysis*, Princeton University Press.

White, H. (2000). *Asymptotic Theory for Econometricians*, Revised Edition. Emerald Publishing.

I will post lecture notes on the CMS system (cms.phbs.pku.edu.cn). The notes serve as an outline only and many details are left out. Exam questions are likely to be based on class discussion and examples, which are omitted from lecture notes.

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment (YES with details or
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		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.	No.
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.	No.
	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.	Yes, the course is taught in English full-time.
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, students will learn fundamental theories in Econometrics.
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	Yes, by understanding methodologies used in various business settings.
	5.3. Our students will demonstrate competency in critical thinking.	Yes.

2.2 Course specific objectives

2.3 Assessment/Grading Details

Midterm exam: 40%

Final exam: 60%

I will periodically assign problem sets throughout the course. Although they will not be collected or graded, it is very important to do them, as they are the best way to learn and prepare for the exams.

There will be no make-up exam, *no exceptions*. If you miss an exam due to medical reasons, and a doctor's certificate is provided, your grade will be determined by the other exam you have taken. For example, if you miss the final exam, your final exam score will be counted as 70% of your midterm exam score.

Both midterm and final exams are closed-book, you cannot bring anything except for stationery items (such as pencils and pens). Any student found responsible for violating academic honesty (see 2.4) will earn a failing grade for the course.

The midterm exam will be held during class on a date to be announced (likely to be on the 2nd week of October). The final exam will be held on the final exam schedule of the first module (November 16-17).

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

Chapter 5, 6, 7 of *A Primer in Econometric Theory*, 2nd edition by John Stachurski.

- Modelling dependence: random vectors and matrices, properties of named distributions, conditioning and expectation
- Asymptotics: Law of large numbers (LLN) and Central limit theorem (CLT)
- Stochastic processes, Markov processes, Martingales

Further topics in time series analysis

- Stationarity, Ergodicity
- LLN and CLT for time series
- Vector autoregression (VAR), impulse response functions, Granger causality
- Unit roots, Cointegration

Depending on our pace throughout the module, topics may be added or omitted. Not all topics will be covered in the same detail.