



華東師範大學  
EAST CHINA NORMAL UNIVERSITY

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## East China Normal University

### REEM 21 Intermediate Econometrics

**Instructor:** Wenjun Xue

**Email:** Email: wjxue@shu.edu.cn

**Home University:** Shanghai University

**Semester:** June 27 to July 15, 2022

**Course Hour:** Monday through Friday, 160 mins per teaching day;

**Total Contact Hours:** 64 contact hours

**Credits:** 4

**Designated Textbook with ISBN:** Principles of Econometrics, 4th Edition (ISBN-10 : 0470626739)

**Course Prerequisite:** Fundamental Statistics/Business Statistics

*\*Notes: The course might be moved to online delivery due to COVID-19 pandemic. Students will be notified once such decision is made.*

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## Course Overview

Most of modern economic research are quantitative in nature. This is a higher-level econometrics unit for students who are going to apply econometric models in their economic/business/finance research projects. The objective of the unit is to introduce applied econometric methods to deal with instrumental variable methods, panel models, time series models and discrete choices models. Topics include regression with endogenous variables, fixed-effects/random-effects models, simultaneous equations models, non-stationary methods and Probit/Logit models. Real-world examples are used to illustrate particular techniques. Examples are drawn from both microeconomics and macroeconomics. Problems and exercises are solved using an econometrics software package STATA.

## Learning Outcomes

Upon completion of this course, students should be able to:

### Knowledge

- have concise knowledge of basic regression analysis of economic data
- be able to interpret and critically evaluate outcomes of empirical results
- evaluate empirical models in the single equation context
- perform hypothesis testing using various statistical procedures

### Skills

- be able to apply STATA in regression analyses, including statistical testing to investigate whether the classical assumptions in regression analysis are satisfied
- be a qualified user of basic econometric methods
- perform be a critical reader of the literature concerning empirical analyses

### Competence

- be able to read and understand project reports and journal articles that make use of the concepts and methods that are introduced in the course (e.g. 2SLS)
- be able to make use of econometric models in your own academic work, for example in analyses needed for your thesis.
- Learn how to apply econometric techniques to real-world issues. Conduct group research project using micro dataset.

### Grading Scale and Notes

The following definitions will be used as a guide for the assignment of grades:

Number Grade	Letter Grade	Definitions
94-100	A	Extraordinary distinction, indicating a full mastery of course content and excellent work.
90-93	A-	
87-89	B+	Strong performance demonstrating a high level of attainment, indicating a good comprehension of the course material and the student's full engagement with the course requirements and activities.
84-86	B	
80-83	B-	
77-79	C+	Acceptable performance, demonstrating an adequate and satisfactory comprehension of the course material and the student has met the basic requirements for completing assignments and participating in class activities.
70-76	C	
60-69	D	A marginal performance in the required exercises demonstrating a minimal passing level of attainment.
0-59	F	An unacceptable performance. The F grade indicates that the student's performance has revealed almost no understanding of the course content.

### Assessment Policy

Assessment	Final Grade
Attendance	10%
Homework & Assignment	30%
Mid-Term Examination	20%
Final exam	40%



**Course Schedule**

Date	Lecture	Reading/Assignments/ Examination
Day 1	Simple Regression Model	<b>Reading:</b> Chapter 2 pp.39-74 Chapter 3 pp.95-117
Day 2	Multiple Regression	<b>Reading:</b> Chapter 5 pp.168-198 <b>Homework:</b> <b>Excise 5.6 on page 228</b>
Day 3	Multiple Regression Estimation & Inference	<b>Reading:</b> Chapter 4 pp.131-156 Chapter 6 pp.222-244 <b>Assignment:</b> Research group, each of them should less than five members, should be formed. Group should start to propose their research topic from now on.
Day 4	Heteroskedasticity	<b>Reading:</b> Chapter 8 pp.299-319 <b>Homework:</b> <b>Exercise 8.4 on page 350.</b>
Day 5	Regression Analysis with Time Series Data	<b>Mid-term examination</b> <b>Duration: One hour 30 minutes</b> <b>40 Multiple choice questions</b> <b>Reading:</b> Chapter 9 pp.336-378
Day 6	Panel Data Methods Introduction & Theory	<b>Reading:</b> Chapter 15 pp.539 -558
Day 7	Panel Data Methods Application	<b>Reading:</b> Chapter 15 pp.539 -558  Yao, Y., & Salim, R. (2020). Crowds in or crowds out? The effect of foreign direct investment on domestic investment in Chinese cities. <i>Empirical Economics</i> , 58(5), 2129-2154. Yao, Y., Ivanovski, K., Inekwe, J., & Smyth, R. (2019). Human capital and energy consumption: Evidence from OECD countries. <i>Energy Economics</i> , 84, 104534. <a href="https://doi.org/10.1016/j.eneco.2019.104534">doi.org/10.1016/j.eneco.2019.104534</a>
Day 8	Instrumental Variables Estimation and Two Stage Least Squares Introduction & Theory	<b>Reading:</b> Chapter 15 Instrumental Variables Estimation and Two Stage Least Squares (pp.484-511) Wooldridge, J.M. (2012). <i>Introductory Econometrics: A Modern Approach</i> . 5th edition. South-Western Press: Mason, Ohio. <b>Assignment:</b> Data for the group research project should be prepared. Group leader should be discussed with coordinator regarding applicability of the data.



Day 9	Instrumental Variables Estimation and Two Stage Least Squares Application	<p><b>Reading:</b> Chapter 15 Instrumental Variables Estimation and Two Stage Least Squares (pp.484-511) Wooldridge, J.M. (2012). Introductory Econometrics: A Modern Approach. 5th edition. South-Western Press: Mason, Ohio.</p>
Day 10	Instrumental Variables Estimation and Two Stage Least Squares Application STATA program using real dataset	<p><b>Reading:</b> Yao, Y., Chen, G. S., Salim, R., &amp; Yu, X. (2018). Schooling returns for migrant workers in China: Estimations from the perspective of the institutional environment in a rural setting. China Economic Review, 51, 240-256.</p>
Day 11	Simultaneous Equation Estimation Introduction & Theory	<p><b>Reading:</b> Chapter 11 pp. 447-460.</p> <p><b>Assignment:</b> Major results should be finalized at this stage. Groups are encouraged to discuss with the coordinator pertaining to the validity of their finding.</p>
Day 12	Simultaneous Equation Estimation Application and STATA estimation	<p><b>Reading:</b> Chapter 11 pp. 447-460.</p>
Day 13	Limited Dependent Variable Models Introduction & Theory	<p><b>Reading:</b> Chapter 16 pp. 585-623</p>
Day 14	Limited Dependent Variable Models Application	<p><b>Reading:</b> Chapter 16 pp. 585-623 Chen, Y., &amp; Fang, H. (2021). The long-term consequences of China's "Later, Longer, Fewer" campaign in old age. Journal of Development Economics, 151, 102664. doi.org/10.1016/j.jdeveco.2021.102664</p>
Day 15	Final exam	<p><b>Final assignment:</b> Each group should present their research topic and major finding within 30 minutes (Each member of team should present).</p> <p>Presentation should parallel to the structure your research project and must contains:</p> <p><b>Research motivation</b> <b>Data &amp; Method</b> <b>Estimation &amp; Inference</b> <b>Major finding and potential policy implications</b></p>

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## Reading List:

*Note: all article resources can be found through library system provided by your institution.*

### Example article using time series analysis:

Chen, G. S., Yao, Y., & Malizard, J. (2017). Does foreign direct investment crowd in or crowd out private domestic investment in China? The effect of entry mode. *Economic Modelling*, 61, 409-419.

### Example article using 2SLS:

Yao, Y., Chen, G. S., Salim, R., & Yu, X. (2018). Schooling returns for migrant workers in China: Estimations from the perspective of the institutional environment in a rural setting. *China Economic Review*, 51, 240-256.

### Example article with novel IV sets:

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The Colonial Origins of Comparative Development: An Empirical Investigation. *The American Economic Review*, 91(5), 1369-1401.

### Example article using panel dataset

Yao, Y., & Salim, R. (2020). Crowds in or crowds out? The effect of foreign direct investment on domestic investment in Chinese cities. *Empirical Economics*, 58(5), 2129-2154.

Yao, Y., Ivanovski, K., Inekwe, J., & Smyth, R. (2019). Human capital and energy consumption: Evidence from OECD countries. *Energy Economics*, 84, 104534. doi.org/10.1016/j.eneco.2019.104534

### Example article using probit/logit model:

Chen, Y., & Fang, H. (2021). The long-term consequences of China's "Later, Longer, Fewer" campaign in old age. *Journal of Development Economics*, 151, 102664. doi.org/10.1016/j.jdeveco.2021.102664

## Further Reading List:

Wooldridge, J.M. (2012). *Introductory Econometrics: A Modern Approach*. 5th edition. South-Western Press: Mason, Ohio.

Online copy can be found at:

[https://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey\\_M.\\_Wooldridge\\_Introductory\\_Econometrics\\_A\\_Modern\\_Approach\\_2012.pdf](https://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey_M._Wooldridge_Introductory_Econometrics_A_Modern_Approach_2012.pdf)

**Chapter 14** Advanced Panel Data Methods (pp.448-483)

**Chapter 15** Instrumental Variables Estimation and Two Stage Least Squares (pp.484-511)

**Chapter 16** Simultaneous Equations Models (pp.511-553)

**Chapter 17** Limited Dependent Variable Models and Sample Selection Corrections (pp. 583-631)

## Online resource:

Dataset provided by the textbook:

<http://principlesofeconometrics.com/poe4/poe4.htm>

Text book:

<http://repositorii.urindo.ac.id/repository2/files/original/112377a4f88699ef6d0e6a0a9fc7150b2811c4f5.pdf>