



蘇州大學  
Soochow University

# ECO 424 Advanced Topics in Econometrics

Winter 2024

**Course Credits:** 4

**Contact Hours:** 56 hours

**Instructor:** TBA

**Email:** TBA

## COURSE OBJECTIVES

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This course begins with a review of economics and the linear regression model before proceeding to an extensive regression analysis. It focuses on the application of econometric methods to real-world questions and data, equipping students with the tools necessary to address complex economic questions. Emphasis is placed on techniques for estimation and hypothesis testing relevant to economists' interests. More advanced topics covered in the course include instrumental variables regression, time series models, panel data models, and qualitative response models.

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

1. Gain a solid understanding of the theoretical foundations of econometric techniques and models beyond the basics of linear regression;
2. Develop a comprehensive understanding of instrumental variables (IV) regression as an essential technique;
3. Develop proficiency in modeling and analyzing time series data, including understanding autoregressive processes, moving averages, and volatility modeling;
4. Gain a thorough understanding of panel data analysis, which involves combining cross-sectional and time-series data;
5. Explore specialized topics in micro-econometrics;
6. Address real-world economic questions by incorporating relevant data and applying appropriate econometric methods.

## PREREQUISITES

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ECO 317 Introductory Econometrics



## GRADING

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Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
Assignments	50 Points
Midterm 1	15 Points
Midterm 2	15 Points
Final Exam	20 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

## COURSE MATERIALS

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### Required Texts:

A. Colin Cameron, Pravin K. Trivedi, *Microeconometrics: Methods and Applications*, Cambridge University Press, 2005.

James H. Stock, Mark W. Watson, *Introduction to Econometrics*, Pearson, 2019.

### Recommended (Optional) Texts or Other Materials:

None

## COURSE TOPICS

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MODULE	TASKS
Module 1	<b>Topics:</b> Topic 1: Introduction: Economic Questions and Data Topic 2: Review of Probability and Statistics Topic 3: Fundamentals of Regression Analysis Topic 4: Review of Linear Regression Model <b>Assessments:</b> Assignment#1



Module 2	<b>Topics:</b> Topic 5: Instrumental Variables Regression Topic 6: The IV Estimator with a Single Regressor and a Single Instrument Topic 7: The General IV regression Model Topic 8: Checking Instrument Validity <b>Assessments:</b> Assignment#2
Module 3	<b>Topics:</b> Topic 9: Regression Analysis of Economic Time Series Data Topic 10: Introduction to Time Series Regression and Forecasting Topic 11: Nonstationarity Topic 12: Estimation of Dynamic Causal Effects Assignment#3 <b>Assessments:</b> Midterm#1
Module 4	<b>Topics:</b> Topic 13: Additional Topics in Time Series Regression Topic 14: Further Topics in Regression Analysis: Regression with Panel Data Topic 15: Regression with a Binary Dependent variable Topic 16: Experiments and Quasi-Experiments Assignment#4 <b>Assessments:</b> Midterm#2
Module 5	<b>Topics:</b> Topic 17: The Econometric Theory of Regression Analysis Topic 18: The Theory of Linear Regression with One Regressor Topic 19: The Theory of Multiple Regression Topic 20: Final Exam Review Assignment#5 <b>Assessments:</b> Final Exam

## ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow



University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

### **LEARNING REQUIREMENTS**

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

### **TECHNOLOGY POLICY**

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

### **ACADEMIC INTEGRITY POLICY**

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.



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## **DISABILITY ACCOMMODATION**

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Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.