

Course Outline

EE325 Introductory Econometrics (Section 046401)

Semester 1/2024 (August 13 - December 2, 2024)

Lecture Time: Tuesday, 09.00-12.00 hours

Lecture Venue: Room 201, 2nd floor, Faculty of Economics

Teaching Materials Platform: Google Classroom (Class code [giph643](#))

Instructor: Name: Asst. Prof. Dr. Wanwiphang Manachotphong

Office Hours: By appointment

Email: wanwiphang@econ.tu.ac.th

Line group:



Number of Credit: 3 Credits (3-0-6)

Prerequisite: EE211 (or EE213), EE212 (or EE214), MA216 (or MA211) and ST216 (or ST211) (Credit will not be awarded to students who are taking or have completed EE425)

Course Description:

Applying statistical methods and economic theories to analyze economic data using the simple and multiple regression. Topics also include dummy variable, multicollinearity, heteroscedasticity, autocorrelation, and specification error. This course focuses on how to choose the appropriate tool for an empirical study, with the emphasis placed on using some econometric softwares.

Course Objectives:

This class aims to equip students with a comprehensive understanding of useful econometrics concepts and methods. Through practical applications, students will develop statistical reasoning skills and gain proficiency in analyzing economic data using STATA. They will learn to interpret and evaluate regression results, and recognize the assumptions and limitations of econometrics models. Through in-class and take-home assignments, this class seeks to promote students' collaborative and independent learning skills.

Expected Learning Outcomes

1. Morality and Ethics **EE325**

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Students demonstrate integrity.	Class participation and exam
○	2. Students prioritize social and public benefits over personal ones.	Class participation
●	3. Students are punctual and comply with the code of conduct of the institution and society at large.	Class participation and exam
○	4. Students are responsible and accountable to society, the nation, and the subject of economics.	Class participation and exam
○	5. Students realize the cultural and environmental value of a sustainable society.	Class participation and exam

2. Knowledge

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Students know and understand modern economics principles and theories, and are up to date with new developments.	Class participation and exam
●	2. Students know and understand Thai and global economic structure and the importance of major international economic events.	Class participation and exam
●	3. Students know and understand the instruments of economic analysis.	Class participation and exam
●	4. Students know and understand applied fields in economics, including monetary, public, international, business, natural resource, and environmental, industrial, agricultural, cooperative, political, developmental, and entrepreneurial economics as well as agribusiness.	Class participation and exam
○	5. Students are informed about related fields including sociology, business administration, education, law policy, and science.	Class participation and exam

3. Intellectual Development

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Students have developed individual critical thinking.	Class participation and exam
●	2. Students are sufficiently trained in research skills.	Class participation and exam
●	3. Students demonstrate an ability to analyze and synthesize data, as well as appropriately integrate economics concepts to understand the causes of current economic problems in Thailand. Based on analysis and synthesis, students demonstrate an ability to propose policy guidelines to resolve problems.	Class participation and exam

4. Interpersonal Skills and Responsibilities

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Students are responsible for assigned tasks and work in groups effectively.	Class participation and exam
●	2. Students have problem-solving skills.	Class participation and exam
○	3. Students show leadership skills and team spirit.	Class participation and exam
●	4. Students are always improving themselves.	Class participation and exam
○	5. Students have good interpersonal skills, adapt, and work under different conditions.	Class participation and exam

5. Quantitative Analysis, communication, and information technology

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Students select and apply appropriate statistical and mathematical methods for data processing, interpretation, conclusions, and recommendations to resolve problems.	Class participation and exam
○	2. Students communicate effectively and select appropriate presentation methods.	Class participation and exam
●	3. Students use information and communication technologies appropriately to gather data as well as process, interpret, and present results.	Class participation and exam

Remark: ● Primary expected outcome ○ Secondary expected

Main Text:

Wooldridge, J. M. *Introductory Econometrics: A Modern Approach*. Thompson: South-Western.

Recommended Texts & Materials:

Gujarati, D.N., and D.C. Porter, *Basic Econometrics*. 5th ed., N.Y., McGraw-Hill, 2009.

Jame H. Stock and Mark W. Watson, *Introduction to Econometrics*, 2nd Edition, Boston: Pearson Addison Wesley (2007)

William E. Griffiths, R. Carter Hill and George G. Judge, *Learning and Practicing Econometrics*, John Willey & Sons (1993 or latest edition)

Joshua D. Angrist and Jörn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press (2009)

ISBN-13: 978-0-691-12035-5

Grading Criteria:

Homework and Assignments 10%

Class Attendances, Quizzes and Participation 15%

Midterm Exam 35% **(Thursday, October 3, 2024; 9.00-11.00 hrs.)**

Final Exam 40% **(Friday, December 6, 2024; 13.30-16.30 hrs.)**

Homework – submissions must be in each student's own handwriting. Late homework will receive 50% of the actual marks. Homework marks are effort-based, so if you attempt all the questions, you will receive full marks. I will also provide the solutions along with the homework.

Quizzes – there will be an in-class quiz right after you submit your homework. Quiz questions will be taken directly from your homework with some changes in numbers.

In-class assignments – on the day that there is no quiz, there will be an in-class assignment.

Absence policy – there is no make-up quiz/in-class assignment. However, each student can miss up to 3 quizzes or in-class assignments without affecting their final grade. (e.g. a student who misses 1 quiz and 2 in-class assignments will have used up all their absence quota.)

*If there is any handout or additional reading, it will be posted on Google Classroom prior to class. Students are responsible to review the topic ahead of the class for more effective learning.

Tentative Class Schedule:

Introduction

- What is econometrics?
- Methodology of econometrics
- Types of economic data
(Wooldridge, ch.1 or Gujarati, ch. 1)

Review of Some Statistical Concepts

- Random variables and distributions
- Expectation, variance, covariance and correlation
- Estimators and desirable properties of estimators
(Wooldridge, Appendix B or Gujarati, Appendix A, pp.869-912)

Simple Regression Models

- Principle, assumptions and derivation of ordinary least squares (OLS) estimators
- Properties of OLS estimators
- Statistical inference
- Prediction
- Regression Through the Origin
(Wooldridge, ch. 2 or Gujarati, chs. 2 – 6)

Multiple Regression Analysis (Estimation)

- Motivation
- Model and assumptions
- Estimation of parameters and properties of estimators
- Meaning of partial regression coefficients
- Measuring goodness of fit: R^2 and adjusted R^2
(Wooldridge, ch. 3 or Gujarati: ch. 7, Appendix B, C)

Multiple Regression Analysis (Inference)

- Sampling Distribution of the OLS estimators
- Test on individual regression coefficients

<<<<<<< Midterm Exam >>>>>>>>

- Testing the multiple linear restrictions
- Testing the equality of two regression coefficients
- Testing for equality or stability of parameters (Chow test)
- Prediction with general linear model
(Wooldridge, ch. 4 or Gujarati: ch. 8)

Multiple Regression Analysis (Extensions)

- Data scaling on OLS statistics
- More on functional forms
(Wooldridge, ch. 6, (6.1 and 6.2))

Dummy Variable Regression Models

- Describing Qualitative Information
- Models with a single dummy independent variable
- Using dummy variables for multiple categories
- Interactions involving dummy variables
(Wooldridge, ch. 7 or Gujarati: ch. 15)

Heteroscedasticity Problem

- Nature and Consequences of heteroscedasticity for OLS
- Testing for heteroscedasticity
- Remedial measures (weighted least squares estimation)
(Wooldridge, ch. 8 or Gujarati, ch. 11)

Specification Errors and Data Problems

- Type of specification errors
- Consequences of specification error
- Tests of specification error
- Errors of measurement
(Wooldridge ch. 9 or Gujarati: ch. 13)

Multicollinearity Problem

- Nature and Consequences of Multicollinearity
- Detecting Multicollinearity
(Wooldridge, ch. 3 (3.4) or Gujarati, ch. 10)

Autocorrelation Problem

- Nature and Consequences of Autocorrelation, Serial Correlation
- Testing for Autocorrelation
- Remedial measures
(Wooldridge, ch. 12 (12.1-12.3) or Gujarati, ch. 12)

Semester 1/2024 (August 13 – December 2, 2024)	
Create Plan from Quota via TU Greats App (*ID.64 – 66)	July 9 – 11, 2024
Registration via TU Greats App (*ID.64 – 66)	July 9 – 11, 2024
Tuition Fee Payment Period (Via TU Greats App) (*ID.64 – 66)	July 9 – August 9, 2024
Classes Begin	August 13, 2024
Add-drop period	August 13 – 26, 2024 <i>(from 9.00 AM of August 13 to 10.30 PM of August 26)</i>
Tuition Fee Payment Period (Via TU Greats App) <i>(All *ID)</i>	August 13 – 27, 2024 <i>(9 AM - 10.30 PM)</i>
Mid-term Examination Period	September 29 – 30, October 1 – 6, 2024
<i>Substitution for H.M. King Bhumibol Adulyadej The Great Memorial Day*</i>	<i>October 14, 2024</i>
<i>King Chulalongkorn's Day*</i>	<i>October 23, 2024</i>
Withdrawal period with "W" on record	August 29 – October 20, 2024 <i>(from 9.00 AM of August 29 to 10.30 PM of October 20)</i>
Special Withdrawal with "w" on record	October 21 – November 20, 2024
Last day of class for Semester 1/2024	December 2, 2024
Final exam period	December 3-4, 6-9, 11-19, 2024
<i>H.M. King Bhumibol Adulyadej The Great's Birthday*</i>	<i>December 5, 2024</i>
<i>Constitution Day*</i>	<i>December 10, 2024</i>
Submitting Forms for Degree Conferral	August 13 – 26, 2024

Remark * Holiday, No classes during this period
Updated: June 14, 2024