



Course Outline
EE426 ECONOMETRICS 2
Semester 2/2023

Class Time and Logistic

Class day: Thursday
Class time: 9:00 – 12:00 hrs.
Venue: Meeting Room 6/2, 4th Floor, Faculty of Economics
Zoom Meeting ID: 991 0091 4645 Passcode: EconTU
Teaching Materials Platform (GoogleClassroom):
<https://classroom.google.com/c/NjUxMDI0Mzg5MzY0?cjc=xdpal6h>

Instructor:

Name: Assoc. Prof. Tatre Jantarakolica, PhD.
Office Hours: Thursday 8:00 – 9:00 hrs.
Email: tatre@econ.tu.ac.th
Phone: 02 613 2467

Number of credits 3 credits

Prerequisites:

Curriculum 56: EE425 and MA217 (or MA212)

Curriculum 61: EE425

Course Description:

This course covers more advanced topics in econometrics for undergraduate level and focuses on both theoretical framework (basic concept) and empirical applications. The first parts introduce panel data models, and further discuss instrumental variables and two stage least squares. We then cover system of regressions and seemingly unrelated regression (SUR). This topic will also link to the topic of simultaneous equation system and its parameter estimation. Then, we turn our attention to exploring qualitative response models using maximum likelihood technique, and conclude by studying time series model.

Course Objectives:

This course is designed to provide advanced econometrics techniques and enable students to apply econometric tools for economic analysis. Materials in this course will be balanced between theoretical concept and practices with the actual data and econometric software.

Evaluation:	Mid-term examination	30 %
	Final examination	30 %
	In-class Workshop	20 %
	Assignment	20 %

Computer Software: STATA

Course Content:**1. Review Basic Econometrics Concept**Diagnostic Tests

- Its Relative Importance
- Key Diagnostic Tests
 - (a) Heteroskedasticity
 - (b) Residual Normality
 - (c) Functional Form Misspecification Tests
 - (d) Multicollinearity
- Functional Forms of Regression Model
 - (a) Types of Specification Errors
 - (b) Test for Functional Form Misspecification

2. Estimation methods

- 2.1 Least Squares
- 2.2 System Estimation Methods
- 2.3 MLE
- 2.4 GMM

3. Limited Dependent Variable Models**4. Panel Data Estimation**

5. Time-series Econometrics

Required Textbooks:

*Gujarati, D., & Porter, D.C. (2017). *Basic Econometrics*. 5th ed. Singapore: McGraw-Hill.

Heij, C., deBoer, P., Franses, P.H., Kloek, T., & van Dijk, H.K. (2004). *Econometric Methods with Applications in Business and Economics*. New York: Oxford University Press. (Chapter 4)

Johnston, J., & DiNardo, J. (1997). *Econometric Methods*. 4th ed. Singapore: McGraw-Hill.

Reference Texts:

Enders, W. (2010). *Applied Econometric Time Series*, 3rd ed. Hoboken, NJ: John Wiley and Sons.

Greene, W.H. (2018). *Econometric Analysis*. 8th ed. Bangalore, India: Pearson Education.

Wooldridge, J.M. (2006). *Introductory Econometrics: A Modern Approach*. 3rd ed. Mason, OH: Thomson-South-Western.

Expected Learning Outcomes:

1.Morality and Ethics

Applicability	Learning Goals
●	1.1 Students demonstrate integrity.
○	1.2 Students prioritize social and public benefits over personal ones.
●	1.3 Students are punctual and comply with the code of conduct of the institution and society at large.
○	1.4 Students are responsible and accountable to society, the nation, and the subject of economics.
○	1.5 Students realize the cultural and environmental value of the sustainable society.

2.Knowledge

Applicability	Learning Goals
●	2.1 Students know and understand modern economics principles and theories, and are up to date with new developments.
●	2.2 Students know and understand Thai and global economic structure, and the importance of major international economic events.
●	2.3 Students know and understand instruments of economic analysis.
●	2.4 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.

○	2.5 Students are informed about related fields including sociology, business administration, education, law policy, and science.
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3. Intellectual Development

Applicability	Learning Goals
●	3.1 Students have developed individual critical thinking.
●	3.2 Students are sufficiently trained in research skills.
●	3.3 Students demonstrate an ability to analyze and synthesize data, as well as appropriately integrate economics concepts to understand causes of current economic problems in Thailand. Based on analysis and synthesis, students demonstrate an ability to propose policy guidelines to resolve problems.

4. Interpersonal Skills and Responsibilities

Applicability	Learning Goals
●	4.1 Students are responsible for assigned tasks and work in groups effectively.
●	4.2 Students have problem-solving skills.
○	4.3 Students show leadership skills and team spirit.
●	4.4 Students are always improving themselves.
○	4.5 Students have good interpersonal skills, adapting and working under different conditions.

5. Quantitative Analysis, Communication and Information Technology

Applicability	Learning Goals
●	5.1 Students select and apply appropriate statistical and mathematical methods for data processing, interpretation, conclusions, and recommendations to resolve problems.
○	5.2 Students communicate effectively and select appropriate presentation methods.
●	5.3 Students use information and communication technologies appropriately to gather data as well as process, interpret, and present results.

Course Schedule:

Week	Content	Chapter	Activity (Due)
Week 1 11 Jan 23	Review - Estimation Method – GLS	1-13	
Week 2 18 Jan 23	Estimation Method – System Estimation	18-20	Assign 1 WS1
Week 3 25 Jan 23	Estimation Method – Asymptotic & NLS	Heij 4	Assign 2 WS2
Week 4 1 Feb 23	Estimation Method – MLE	Heij 4	Assign 3 WS3
Week 5 8 Feb 23	Estimation Method – GMM	Heij 4	Assign 4 WS4
Week 6 15 Feb 23	Binary Choice Models - Logit-Probit Model	15	Assign 5 WS5
Week 7 22 Feb 23	Panel Data Model	16	Assign 6 WS6
Mid-term 29 Feb 23 9:00 – 15:00 hrs.	Take-home Mid-term Exam		
Week 8 7 Mar 23	Multinomial Data Models	15	WS7
Week 9 14 Mar 23	Multivariate Data Models	15	Assign 7 WS8
Week 10 21 Mar 23	Limited Dependent Variables Model	15	Assign 8 WS9
Week 11 28 Mar 23	Limited Dependent Variables Model (Cont.)	15	Assign 9 WS10
Week 12 4 Apr 23	Time Series Models – Properties – Unit Root Test	21-22	Assign 10 WS11
Week 13 18 Apr 23	Time Series Models – ARIMA Models – GARCH Models	21-22	Assign 11 WS12
Week 14 25 Apr 23	Time Series Models – VARs	22	Assign 12 WS13
Week 15 2 May 23	Time Series Models – VARs (Cont.)	22	Assign 13
Final Exam Monday 20 May 23 9:00 – 15:00 hrs.	Take-home Final Exam		