



# B.E. International Program

Faculty of Economics, Thammasat University



## Course Outline

### EE426 Econometrics 2

Semester 2/2020 (January 20 – May 19, 2021)

**Enrollment Key** 3123  
**Number of credits** 3 credits

**Lecture Time** Tuesdays and Thursday, 11:00 AM – 12:30 AM

**Lecture Venue** Online Zoom:  
<https://zoom.us/j/98485472459?pwd=SjUySzdhRGdkc21UdDBFMkJCQTIGZz09>  
Meeting ID: 984 8547 2459  
Passcode: BETU

**Instructor:** Assoc. Prof. Dr. Tatre Jantarakolica  
Office: Room 9, 60<sup>th</sup> Year Building  
E-mail: tatre@econ.tu.ac.th Tel. 02 613-2467  
Office hours: by appointment

#### 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.

**Prerequisites:** *Curriculum 56: EE425 and MA217 (or MA212)*  
*Curriculum 61: EE425*

#### 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.

<b>Evaluation:</b>	Mid-term examination	30 %
	Final examination	40 %
	Assignment	30 %

## **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. (2009). *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. (2012). *Econometric Analysis*. 7th ed. Upper Saddle River, NJ: Prentice Hall.

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.

**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:**

<b>Week</b>	<b>Content</b>	<b>Chapter</b>	<b>Assign</b>
Week 1 21 Jan 21	Review - Estimation Method – GLS	1-13	
Week 2 26, 28 Jan 21	Estimation Method – System Estimation	18-20	
Week 3 2, 4 Feb 21	Estimation Method – MLE	Heij 4	
Week 4 9, 11 Feb 21	Estimation Method – MLE (Cont.)	Heij 4	
Week 5 16, 18 Feb 21	Estimation Method – GMM	Heij 4	
Week 6 23, 25 Feb 21	Binary Choice Models - Logit-Probit Model	15	
Week 7 2, 4 Mar 21	Panel Data Model	16	
Mid-term 11 Mar 21	<b>Take-home Mid-term Exam</b>		
Week 8 18 Mar 21	Multinomial Data Models	15	
Week 9 23, 25 Mar 21	Multivariate Data Models	15	
Week 10 30 Mar, 1 Apr 21	Limited Dependent Variables Model	15	
Week 11 8 Apr 21	Limited Dependent Variables Model (Cont.)	15	
Week 12 7, 9 Apr 21	Time Series Models – Properties – Unit Root Test	21-22	
Week 13 20, 22 Apr 21	Time Series Models – ARIMA Models – GARCH Models	21-22	
Week 14 27, 29 Apr 21	Time Series Models – VARs	22	
Week 15 4, 6 May 21	Time Series Models – VARs (Cont.)	22	
Week 16 11, 13 May 21	Time Series Models – VARs (Cont.)	22	
Final Exam 28 May 21	<b>Take-home Final Exam</b>		

**Remarks:**

- **Mid-Term Examination** (Tuesday, March 16, 2021, 10.30 - 16.30 hrs.)
- **Final Examination** (Friday, May 16, 2021, 10.30 – 16.30 hrs.)

<b>Semester 2/2020 (January 20 - May 19, 2021)</b>	
Classes Begin	January 20, 2021
Add-drop period	January 25 - 29, 2021
Tuition payment period	January 30 - February 2, 2021
<i>Makha Bucha Day*</i>	<i>February 26, 2021</i>
Mid-term Examination Period	March 10 - 16, 2021
Withdrawal period with "W" on record	March 24 - May 6, 2021
<i>Chakri Memorial Day*</i>	<i>April 6, 2021</i>
<i>Songkran Day Festival*</i>	<i>April 12 - 18, 2021</i>
<i>Substitution for Visakha Bucha Day*</i>	<i>April 26, 2021</i>
<i>Coronation Day*</i>	<i>May 4, 2021</i>
<i>Royal Ploughing Ceremony Day*</i>	<i>May 11, 2021</i>
Last day of class for Semester 2/2019	May 19, 2021
Final exam period	May 20 - June 5, 2021
<i>Visakha Bucha Day*</i>	<i>May 26, 2021</i>
<i>Queen Suthida's Birthday*</i>	<i>June 3, 2021</i>

*\* Public Holiday, No Classes during this period*