

Course Outline

EE 435 Introductory Financial Econometrics

Semester 1/2021 (August 9 – November 27, 2021)

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

Prerequisite: EE325 (or EE425) and EE431 (or EE432)

Course Description: The application of econometrics method to financial and macroeconomics data, emphasizing at time-series models; Characteristics and properties of financial data; Univariate Time-Series Model; Regression with the long-run relationship and short-run dynamics; Volatility Model; Trainings in statistical software.

Course Objectives: This course aims to apply econometric methodology with the economic and financial theory in explaining empirical data, and introduce a more advanced econometrics methodology beyond basic econometrics, especially time series econometrics. The objective is to train students for empirical research. The course focuses mainly on model formulation, parametric estimation method, and applications of the model. Emphasize of the course will be on empirical examples rather than theoretical proof. However, students are all expected to have a good understanding of basic statistics, calculus, and matrix algebra. Thus, students are all responsible for all pre-requisites of the course. This course also aims to have students learn how to use computer software in estimating the econometric models by letting students work on empirical assignments concerning on each topic.

Class Time and Logistic

Class day: Tuesday & Thursday

Class time: 8:00 – 9:30 AM

Teaching Materials Platform: <https://classroom.google.com/c/Mzc2NTY4MTUyNTU5>

Meeting Platform: **Zoom Meeting ID:** 935 7431 3112 **Passcode:** BETU
<https://zoom.us/j/93574313112?pwd=VDREVlpFWDIGc0FQSWNOSIRXNXU2Zz09>

Instructor:

Name: Assoc.Prof. Tatre Jantarakolica, Ph.D

Office Hours: Tue. 9:30 – 10:30 or by appointment

Email: tatre@econ.tu.ac.th

Phone: 081-803-4567

Main Text:

Brooks, C. (2019). Introductory Econometrics for Finance. 4th ed. Singapore: Cambridge University Press.

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

Recommended Texts & Materials

Baltagi, B.H. (2008). Econometric Analysis of Panel Data. 4th ed. West Sussex, UK: John Wiley & Sons.

Berndt, E.R. (1991). The Practice of Econometrics: Classic and Contemporary. New York: Addison-Wesley Publishing. (Chapter 2)

Enders, W. (2014). Applied Econometric Time Series. 4th ed. New York: John Wiley & Sons.

Greene, W.H. (2008). Econometric Analysis. 6th ed. Upper Saddle River, NJ: Prentice Hall.

Hamilton, J.D. (1994). Time Series Analysis. Princeton, NJ: Princeton University Press.

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

Ruud, P.A. (2000). An Introduction to Classical Econometric Theory. New York: Oxford University Press.

Suggested Readings:

Grading Criteria:

1. Assignments	20%
2. Group Projects	12%
3. Group Workshop	13%
4. Midterm Exam	25%
5. Final Exam	<u>30%</u>
	<u>100%</u>

Expected Learning Outcomes:

1. Morality and Ethics

Applicability	Learning Goals	Expected Learning Outcomes
●	1.1 Students demonstrate integrity.	Learn how to make interpretation of the estimated results without bias.
●	1.2 Students prioritize social and public benefits over personal ones.	Learn how to make interpretation of the estimated results without bias.
●	1.3 Students are punctual and comply with the code of conduct of the institution and society at large.	Submit Assignments on time.

●	1.4 Students are responsible and accountable to society, the nation, and the subject of economics.	Learn how to make interpretation of the estimated results without bias.
○	1.5 Students realize the cultural and environmental value of the sustainable society.	Learn how to make interpretation of the estimated results without bias.

2. Knowledge

Applicability	Learning Goals	Expected Learning Outcomes
●	2.1 Students know and understand modern economics principles and theories, and are up to date with new developments.	Learn how to construct econometric models based on economic and financial theories.
●	2.2 Students know and understand Thai and global economic structure, and the importance of major international economic events.	Learn how to construct econometric models based on economic and financial theories.
○	2.3 Students know and understand instruments of economic analysis.	Learn how to construct econometric models based on economic and financial theories.
●	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.	Learn how to construct econometric models based on economic and financial theories.
○	2.5 Students are informed about related fields including sociology, business administration, education, law policy, and science.	Learn how to construct econometric models based on economic and financial theories.

3. Intellectual Development

Applicability	Learning Goals	Expected Learning Outcomes
●	3.1 Students have developed individual critical thinking.	Learn how to make discussion based on estimated results.
●	3.2 Students are sufficiently trained in research skills.	Learn how to make discussion based on estimated results.
●	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.	Learn how to make discussion based on estimated results.

4. Interpersonal Skills and Responsibilities

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

5. Quantitative Analysis, Communication and Information Technology

Applicability	Learning Goals	Expected Learning Outcomes
○	5.1 Students select and apply appropriate statistical and mathematical methods for data processing, interpretation, conclusions, and recommendations to resolve problems.	Learn how to apply econometric model in answering research questions.
○	5.2 Students communicate effectively and select appropriate presentation methods.	Learn how to apply econometric model in answering research questions.
○	5.3 Students use information and communication technologies appropriately to gather data as well as process, interpret, and present results.	Learn how to apply econometric model in answering research questions.

Class Schedule:

Week	Date	Content	Reading	Activity (Due)
1	10/8/2021	<u>Review Least Squares Estimation Method</u> - Ordinary Least Squares Estimation Method	Ch 1-2	
	12/8/2021 (Clip)	<u>Review Least Squares Estimation Method</u> - Least Squares Estimation – Matrix Approach - Generalized Least Squares Estimation Method	Ch 3-4	
2	17/8/2021	<u>Application of Simple Regression Model</u> Capital Asset Pricing Model <u>Application of Multiple Regression Model</u> Fama-French Three Factor Model	Handout	Q&A
	19/8/2021	<u>Application of Dummy Variable Technique</u> Calendar Effect in Stock Market <u>Workshop:</u> <u>Database – Eikon & Datastream (By Dr.Jutamas)</u>	Handout	WS1
3	24/8/2021	<u>Simultaneous Equation Model</u> Simultaneous Biased	Ch 6	Q&A (Assign 1)
	26/8/2021	<u>Simultaneous Equation Model</u> Indirect Least Squares (ILS) Two Stage Least Squares (2SLS) Three Stage Least Squares (3SLS)	Ch 6	WS2
4	31/8/2021	<u>Maximum Likelihood Estimation (MLE) Method</u> Concept	Heij 4	Q&A (Assign 2)
	2/9/2021	<u>Maximum Likelihood Estimation (MLE) Method</u> Computation Inferential Statistics	Heij 4	WS3
5	7/9/2021	<u>Limited Dependent Variable Models</u> Logit & Probit Model – Concept	Ch 11	Q&A
	9/9/2021	<u>Limited Dependent Variable Models</u> Logit & Probit Model – Inferential Statistics	Ch 11	WS4 (Project 1)
6	14/9/2021	<u>Panel Data Models</u> Characteristic of Data and Problems. Model with Heteroscedasticity, Autocorrelation and Cross-sectional Correlation.	Ch 10	Q&A (Assign 3)
	16/9/2021	<u>Panel Data Models</u> Fixed Effects Models. Random Effects Models.	Ch 10	WS5
7	21/9/2021	Univariate Time Series Models Stationary vs Nonstationary	Ch 5	Q&A (Assign 4)
	23/9/2021	Univariate Time Series Models (cont.) Integrated Series	Ch 5	WS6
8	28/9/2021 9:00-14:00	Take-Home Midterm Exam (Week 1 – 6)		

Week	Date	Content	Reading	Activity (Due)
9	5/10/2021	<u>Univariate Time Series Models</u> (cont.) Unit Root Test	Ch 5	Q&A
	7/10/2021	<u>Time Series Models</u> (cont.) Cointegration & Error Correction Models	Ch 5	WS7
10	12/10/2021	<u>Univariate Time Series Models</u> (cont.) ARIMA Model – Estimation	Ch 5	Q&A (Assign 5)
	14/10/2021	<u>Univariate Time Series Models</u> (cont.) ARIMA Model – Forecast	Ch 5	WS8
11	19/10/2021	<u>Modelling Volatility and Correlation</u> Autoregressive Conditional Heteroscedasticity (ARCH), ARCH-M	Ch 8	Q&A (Assign 6)
	21/10/2021	<u>Modelling Volatility and Correlation</u> (cont.) Generalized Autoregressive Conditional Heteroscedasticity (GARCH) EGARCH	Ch 8	WS9
12	26/10/2021	<u>Multivariate Time Series Models</u> Vector Autoregressive (VARs) Model – Concept	Ch 6	Q&A (Assign 7)
	28/10/2021	<u>Multivariate Time Series Models</u> (cont.) Vector Autoregressive (VARs) Model – Procedure	Ch 6	WS10
13	2/11/2021	<u>Multivariate Time Series Models</u> (cont.) Impulse Response Analysis	Ch 6	Q&A (Project 2)
	4/11/2021	<u>Multivariate Time Series Models</u> (cont.) Orthogonal Impulse Response Analysis	Ch 6	WS11
14	9/11/2021	<u>Multivariate Time Series Models</u> (cont.) Forecast Error Variance Decomposition	Ch 6	Q&A (Assign 8)
	11/11/2021	<u>Modelling Long-run Relationships in Finance</u> Engle Granger Cointegration Test	Ch 7	WS12
15	16/11/2021	<u>Modelling Long-run Relationships in Finance</u> (cont.) Johansen Cointegration Test	Ch 7	Q&A (Assign 9)
	18/11/2021	<u>Modelling Long-run Relationships in Finance</u> (cont.) Vector Error Correction Models (VECM)	Ch 7	WS13
16	23/11/2021	<u>Additional Time Series Models</u>	Handout	Q&A (Assign 10)
	25/11/2021	<u>Additional Time Series Models</u> (cont.)	Handout	Q&A
	Wed. 8/12/2021 13:30-18:30	Take-Home Final Exam (Week 7 – 16)		

Remarks:

- ♦ Mid-Term Examination (Tuesday, September 28, 2021, 09.00 - 15.00 hrs.)
- ♦ Final Examination (Wednesday, December 8, 2021, 13.30 – 18.30 hrs.)

Academic Calendar & Holiday

Semester 1/2021

Semester 1/2021 (August 9 - November 27, 2021)	
Classes Begin	August 9, 2021
Add-drop period	August 6 - 15, 2021
Tuition Fee Installment Plan For ID.61-63 only (9 AM - 10.30 PM)	#Round 1 (July 16 – 18, 2021) #Round 2 (August 30 – September 3, 2021) #Round 3 (September 20 – 22, 2021)
<i>H.M. Queen Sirikit The Queen Mother's Birthday*</i>	<i>August 12, 2021</i>
<i>Prince Mahidol Day*</i>	<i>September 24, 2021</i>
Mid-term Examination Period	September 27 - October 3, 2021
Withdrawal period with "W" on record	October 11 - November 15, 2021
<i>H.M. King Bhumibol Adulyadej The Great Memorial Day*</i>	<i>October 13, 2021</i>
<i>Substitution for King Chulalongkorn's Day*</i>	<i>October 22, 2021</i>
<i>King Chulalongkorn's Day*</i>	<i>October 23, 2021</i>
Last day of class for Semester 1/2021	November 27, 2021
Final exam period	November 29-30, December 1-3, 7-9, 11-17, 2021
<i>H.M. King Bhumibol Adulyadej The Great's Birthday*</i>	<i>December 5, 2021</i>
<i>Substitution for H.M. King Bhumibol Adulyadej The Great's Birthday*</i>	<i>December 6, 2021</i>
<i>Constitution Day*</i>	<i>December 10, 2021</i>

Remark * Holiday, No classes during this period