Course Outline

EE 435 Introductory Financial Econometrics

Semester 2/2021 (January 10th – May 7th, 2022)

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/NDUxMzEyMTA2ODc0

Meeting Platform: **Zoom Meeting ID:** 983 5487 9828 **Passcode:** BETU
https://zoom.us/j/98354879828?pwd=ZC82QzNMdTdMNkRscm45YjFTN1RlUT09

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.	In-class Group Workshop	13%
4.	Midterm Exam	25%
5.	Final Exam	30%
		100%

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 analsyis 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	11/1/2022	Review Least Squares Estimation Method - Ordinary Least Squares Estimation Method	Ch 1-2	
	13/1/2022	Review Least Squares Estimation Method - Least Squares Estimation – Matrix Approach - Generalized Least Squares Estimation Method	Ch 3-4	
2	18/1/2022	Application of Simple Regression Model Capital Asset Pricing Model Application of Multiple Regression Model Fama-French Three Factor Model	Handout	Q&A
	20/1/2022	Application of Dummy Variable Technique Calendar Effect in Stock Market Workshop: Database – Eikon & Datastream (By Dr.Jutamas)	Handout	GWS1
3	25/1/2022	Simultaneous Equation Model Simultaneous Biased	Ch 6	Q&A *(Assign 1)*
	27/1/2022	Simultaneous Equation Model Indirect Least Squares (ILS) Two Stage Least Squares (2SLS) Three Stage Least Squares (3SLS)	Ch 6	GWS2
4	1/2/2022	Maximum Likelihood Estimation (MLE) Method Concept	Heij 4	Q&A *(Assign 2)*
	3/2/2022	Maximum Likelihood Estimation (MLE) Method Computation Inferential Statistics	Heij 4	GWS3
5	8/2/2022	Limited Dependent Variable Models Logit & Probit Model – Concept	Ch 11	Q&A
	10/2/2022	Limited Dependent Variable Models Logit & Probit Model – Inferential Statistics	Ch 11	GWS4 *(Project 1)*
6	15/2/2022	Panel Data Models Characteristic of Data and Problems. Model with Heteroscedasticity, Autocorrelation and Cross-sectional Correlation.	Ch 10	Q&A *(Assign 3)*
	17/2/2022	Panel Data Models Fixed Effects Models. Random Effects Models.	Ch 10	GWS5
7	22/2/2022	Univariate Time Series Models Stationary vs Nonstationary	Ch 5	Q&A *(Assign 4)*
	24/2/2022	Univariate Time Series Models (cont.) Integrated Series	Ch 5	GWS6
8	**1/3/2022** **9:00-14:00**	**Take-Home Midterm Exam** (Week 1 – 6)		

Week	Date	Content	Reading	Activity *(Due)*
9	8/3/2022	Univariate Time Series Models (cont.) Unit Root Test	Ch 5	Q&A
	10/3/2022	Time Series Models (cont.) Cointegration & Error Correction Models	Ch 5	GWS7
10	15/3/2022	Univariate Time Series Models (cont.) ARIMA Model – Estimation	Ch 5	Q&A *(Assign 5)*
	17/3/2022	Univariate Time Series Models (cont.) ARIMA Model – Forecast	Ch 5	GWS8
11	22/3/2022	Modelling Volatility and Correlation Autoregressive Conditional Heteroscedasticity (ARCH), ARCH-M	Ch 8	Q&A *(Assign 6)*
	24/3/2022	Modelling Volatility and Correlation (cont.) Generalized Autoregressive Conditional Heteroscedasticity (GARCH) EGARCH	Ch 8	GWS9
12	29/3/2022	Multivariate Time Series Models Vector Autoregressive (VARs) Model – Concept	Ch 6	Q&A *(Assign 7)*
	31/3/2022	Multivariate Time Series Models (cont.) Vector Autoregressive (VARs) Model – Procedure	Ch 6	GWS10
13	5/4/2022	Multivariate Time Series Models (cont.) Impulse Response Analysis	Ch 6	Q&A *(Project 2)*
	7/4/2022	Multivariate Time Series Models (cont.) Orthogonal Impulse Response Analysis	Ch 6	GWS11
14	19/4/2022	Multivariate Time Series Models (cont.) Forecast Error Variance Decomposition	Ch 6	Q&A *(Assign 8)*
	21/4/2022	Modelling Long-run Relationships in Finance Engle Granger Cointegration Test	Ch 7	GWS12
15	26/4/2022	Modelling Long-run Relationships in Finance (cont.) Johansen Cointegration Test	Ch 7	Q&A *(Assign 9)*
	28/4/2022	Modelling Long-run Relationships in Finance (cont.) Vector Error Correction Models (VECM)	Ch 7	GWS13
16	3/5/2022	Additional Time Series Models	Handout	Q&A *(Assign10)*
	5/5/2022	Additional Time Series Models (cont.)	Handout	Q&A
	Friday **20/5/2022** **13:30-18:30**	**Take-Home Final Exam** (Week 7 – 16)		

Remarks:

- **Mid-Term Examination** **(Tuesday, March 1, 2022, 09.00 - 15.00 hrs.)**
- **Final Examination** **(Friday, May 20, 2022, 13.30 – 18.30 hrs.)**

Academic Calendar & Holiday

Semester 2/2021

Semester 2/2021 (January 10 – May 7, 2022)	
Classes Begin	January 10, 2022
Add-drop period	January 17 - 20, 2022 *(from 9.00 AM of January 17 to 10.30 PM of January 20)*
Tuition Fee Payment Period	7 December, 2021 - January 23, 2022 *(9 AM - 10.30 PM)*
*Makha Bucha Day**	*February 16, 2022*
Mid-term Examination Period	February 28 - March 5, 2022
Withdrawal period with "W" on record	March 14 - April 25, 2022 *(from 9.00 AM of March 14 to 10.30 PM of April 25)*
*Chakri Memorial Day**	*April 6, 2022*
*Songkran Festival Day**	*April 11 - 17, 2022*
*Coronation Day**	*May 4, 2022*
Last day of class for Semester 2/2021	May 7, 2022
Final exam period	May 9 - 12, 17 - 25, 2022
*Royal Ploughing Ceremony Day**	*May 13, 2022*
*Visakha Bucha Day**	*May 15, 2022*
*Substitution for Visakha Bucha Day**	*May 16, 2022*

Remark * Holiday, No classes during this period