BACHELOR OF ECONOMICS
THAMMASAT UNIVERSITY

Course Outline

EE 435 Introductory Financial Econometrics

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

Number of credits: 3 credits (3-0-6)
Lecture Time: Tuesday and Thursday, 8.00-9.30 a.m.

Lecture Venue: ZOOM Program

Meeting ID: 568 791 7661

Instructor:

Asst. Prof. Dr. Wasin Siwasarit

Office: Room 455, Faculty of Economics

E-mail: wasin@econ.tu.ac.th
Office hours: Tuesdays and Thursdays 13.30 –14.30 hrs. (or by appointment)

Enrollment key for BE moodle: 4683

Course Description:

The estimation methods of financial econometrics models, such as least square method and maximum likelihood, with the emphasis on time-series model including univariate time-series model, high frequency time-series model, multivariate time- series model; financial forecasting; The regression estimation of variables with long run relationship and short run dynamics; The application of model to analyze financial economics issues.

Prerequisites: EE325 (or EE425) and EE431

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.

Required Text:

*Tsay , R. (T) (2010). *Analysis of Financial Time Series. 3rd Ed*., Hoboken, NJ: John Wiley & Sons.

*Jonathan D. Cryer and Kung-Sik Chan (CC). *Times Series Analysis with Applications in R*, 2nd Ed., Springer.

Supported Text:

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)

Brooks, C. (2008). *Introductory Econometrics for Finance.* 2nd ed. New York, NY: 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)

Enders, W. (2003). *Applied Econometric Time Series.* 2nd 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.* 4thed. Singapore: McGraw-Hill.

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

Expected Learning Outcomes:

1. Morality and Ethics

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

2. Knowledge

Applicability	Learning Goals
●	2.1Students know and understand modern economics principles and theories, and are up to date with new developments.
●	2.2Students know and understand Thai and global economic structure, and the importance of major international economic events.
○	2.3Students know and understand instruments of economic analysis.
●	2.4Students 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.
○	2.5Students are informed about related fields including sociology, business administration, education, law policy, and science.

3. Intellectual Development

Applicability	Learning Goals
●	3.1Students have developed individual critical thinking.
●	3.2Students are sufficiently trained in research skills.
●	3.3Students 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.

4. Interpersonal Skills and Responsibilities

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

5. Quantitative Analysis, Communication and Information Technology

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

Assessment

1. Assignments	**15%**
2. Midterm Exam	**25%**
3. Final Exam	**30%**
4. Weekly Quizzes	**15%**
5. Mini-Project	**15%**
	100%

Academic Honesty

You are expected to be honest in all of your academic work. Copying is plagiarism and will be treated as an honor code violation. Potential sanctions include failure in the course and suspension from the university.

Conduct and Manner

Ethics is all above everything, far more valuable than merely subject knowledge. Accordingly, plagiarism and cheating, including any possible plagiarism and cheating, will be subject to penalties as stated in the University Regulations. More importantly, to achieve overall objectives of learning, it is strongly advised that all students of EE435 classes behave in proper manner with socially acceptable and right conduct.

Below is advised code of conduct to be performed in EE435 class. Achieving and maintaining the code of conduct throughout the course will surely be awarded.

1. No mobile phones used. This includes silent mode, message sending, LINE, and all social network communication that would interfere teaching and learning. Should any mobile phone ring, a pop-up closed-book quiz will be given to all students in the group. Score earned from the quiz will be counted toward the course evaluation.

2. Be punctual. Class starts at 08:00 am. Yet it is understood that students may have continuing classes that cause delay. It is acceptable if it is a few minutes late. But unnecessary delay should be avoided. Even if students are on time, they are advised not to leave the room without unnecessary purposes.

3. Behave. Everyone is expected to behave with basic politeness, civility, and respect for others. In particular, talking in class is allowed if it's part of a class discussion. Private communications are not, especially during quizzes. Neither are reading extraneous materials, using electronic equipment/s or sleeping. Other socially acceptable manner should be practiced here. For example, this is a classroom whereby food and drink is not allowed. This is the university whereby students wear proper dress.

Course Outline:

1 : Introduction

Sessions	Topic
3-4	1. Time Series and Stochastic Processes 2. Means Variances and Covariances 3. Fundamental Distributions (Normal, Chi, and F) 4. Stationarity 5. Unit Root and Stationary 6. Correlation and Autocorrelation Functions 7. White noise process 8. Estimation (OLS and MLE) 9. Trends 10. Seasonal Models
Readings	CC. Ch 2 , 3.1 T. Ch1, Ch 2.1, 2.2, 2.3, 2.7, 2.8

Univariate Time Series Models

2: Autoregressive Models

Sessions	Topic
3-4	Autoregressive (AR) Models Specification Properties Estimation Forecast and Forecast Error
Readings	CC. Ch 4 T. Ch 2.4

3: Moving Average Models

Sessions	Topic
3-4	Moving Average (MA) Specification Properties Estimation Forecast and Forecast Error
Readings	CC. Ch 4 T. Ch 2.5

Midterm Exam: Tuesday, March 16, 2021, 09:00 – 11:00 hrs.

Volatility Models

4: Autoregressive Conditional Heteroskedastic Model

Sessions	Topic
3-4	Autoregressive Conditional Heteroskedastic (ARCH) Model Specification Properties Estimation Forecast and Forecast Error
Readings	CC. Ch 12.1 12.2 T. Ch 3.1, 3.2, 3.3, 3.4

5:Generalized Autoregressive Conditional Heteroskedastic Model

Sessions	Topic
2-3	Generalized Autoregressive Conditional Heteroskedastic (GARCH) Model Specification Properties Estimation Forecast and Forecast Error
Readings	CC. Ch 12.3 T. Ch 3.5

Multivariate Time Series Models

6: Vector Autoregressive Model

Sessions	Topic
4-5	Vector Autoregressive (VAR) Model Specification Properties Estimation Forecast and Forecast Error Cointegration and Error Correction Model Impulse Response Functions Variance Decomposition (Extension to VMA)
Readings	T. Ch 8.1, 8.2, 8.5, 8.6

Final Exam: Monday, May 24, 2021, 9:00 – 12:00 hrs.

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ACADEMIC CALENDAR
SEMESTER 2/2020

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

** Public Holiday, No Classes during this period*

FACULTY OF ECONOMICS THAMMASAT UNIVERSITY
2 PRACHAN ROAD, PHRANAKORN BANGKOK 10200 THAILAND

WWW.BE.ECON.TU.AC.TH
B.E. INTERNATIONAL PROGRAM

FAX : +66 (0) 2224 0150
PHONE : +66 (0) 2613 2437 TO 8
E-MAIL : BE@ECON.TU.AC.TH