



# **B.E. International Program**

## Faculty of Economics, Thammasat University



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### Course Outline

#### **EE 435 Introductory Financial Econometrics**

Semester 1/2012 (August 14 – December 1, 2012)

- Number of credits:** 3 credits
- Lecture Time:** Tuesdays and Thursdays, 9.30-11.00 hrs.
- Lecture Venue:** Room 203, Faculty of Economics
- Instructor:** Assoc. Prof. Tatre Jantarakolica, PhD.

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:**

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)

## **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:**

Brooks, C. (2008). *Introductory Econometrics for Finance*. 2<sup>nd</sup> 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)

## **Supported Text:**

Baltagi, B.H. (2008). *Econometric Analysis of Panel Data*. 4<sup>th</sup> 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. (2003). *Applied Econometric Time Series*. 2<sup>nd</sup> ed. New York: John Wiley & Sons.

Greene, W.H. (2008). *Econometric Analysis*. 6<sup>th</sup> 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*. 4<sup>th</sup> ed. Singapore: McGraw-Hill.

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

## Teaching Plan:

### Class Schedule

Week	Date	Content	Reading
1	14 Aug 12	<u>Review Least Squares Estimation Method</u> - Ordinary Least Squares Estimation Method	Ch 1-2
	16 Aug 12	<u>Review Least Squares Estimation Method</u> - Generalized Least Squares Estimation Method - Least Squares Estimation – Matrix Approach	Ch 3-4
2	21 Aug 12	<u>Application of Simple Regression Model</u> Capital Asset Pricing Model Spot & Future Market  <u>Application of Multiple Regression Model</u> Fama-French Three Factor Model	Handout
	23 Aug 12	<u>Application of Dummy Variable Technique</u> Calendar Effect in Stock Market	Handout
3	28 Aug 12	<u>Simultaneous Equation Model</u> Simultaneous Biased	Ch 6
	TBA	<u>Simultaneous Equation Model</u> Indirect Least Squares (ILS) Two Stage Least Squares (2SLS) Three Stage Least Squares (3SLS)	Ch 6
4	4 Sep 12	<u>Maximum Likelihood Estimation (MLE) Method</u> Concept	Heij 4

Week	Date	Content	Reading
	6 Sep 12	<u>Maximum Likelihood Estimation (MLE) Method</u> Computation Inferential Statistics	Heij 4
5	11 Sep 12	<u>Limited Dependent Variable Models</u> Logit & Probit Model – Concept	Ch 11
	13 Sep 12	<u>Limited Dependent Variable Models</u> Logit & Probit Model – Inferential Statistics	Ch 11
6	18 Sep 12	<u>Limited Dependent Variable Models</u> Multinomial Logit & Probit Model Order Probit Model	Ch 11
	20 Sep 12	<u>Limited Dependent Variable Models</u> Censored Regression Model Truncated Regression Model	Ch 11
7	25 Sep 12	Univariate Time Series Models Stationary vs Nonstationary	Ch 5
	27 Sep 12	Univariate Time Series Models (cont.) Integrated Series	Ch 5
8	<b>4 Oct 12</b> <b>(9.30–11.00hrs)</b>	<b>Midterm</b>	

<b>Week</b>	<b>Date</b>	<b>Content</b>	<b>Reading</b>
<b>9</b>	9 Oct 12	<u>Univariate Time Series Models</u> (cont.) Unit Root Test	Ch 5
	11 Oct 12	<u>Time Series Models</u> (cont.) Cointegration & Error Correction Models	Ch 5
<b>10</b>	16 Oct 12	<u>Univariate Time Series Models</u> (cont.) ARIMA Model – Estimation	Ch 5
	18 Oct 12	<u>Univariate Time Series Models</u> (cont.) ARIMA Model – Forecast	Ch 5
<b>11</b>	TBA	<u>Multivariate Time Series Models</u> Vector Autoregressive (VARs) Model – Concept	Ch 6
	25 Oct 12	<u>Multivariate Time Series Models</u> (cont.) Vector Autoregressive (VARs) Model – Procedure	Ch 6
<b>11</b>	30 Oct 12	<u>Multivariate Time Series Models</u> (cont.) Impulse Response Analysis	Ch 6
	1 Nov 12	<u>Multivariate Time Series Models</u> (cont.) Orthogonal Impulse Response Analysis	Ch 6
<b>12</b>	6 Nov 12	<u>Multivariate Time Series Models</u> (cont.) Forecast Error Variance Decomposition	Ch 6
	8 Nov 12	<u>Modelling Long-run Relationships in Finance</u> Engle Granger Cointegration Test	Ch 7
<b>13</b>	13 Nov 12	<u>Modelling Long-run Relationships in Finance</u> (cont.) Johansen Cointegration Test	Ch 7
	15 Nov 12	<u>Modelling Long-run Relationships in Finance</u> (cont.) Vector Error Correction Models (VECM)	Ch 7

<b>Week</b>	<b>Date</b>	<b>Content</b>	<b>Reading</b>
<b>14</b>	20 Nov 12	<u>Modelling Volatility and Correlation</u> Autoregressive Conditional Heteroscedasticity (ARCH) ARCH-M	Ch 8
	22 Nov 12	<u>Modelling Volatility and Correlation</u> (cont.) Generalized Autoregressive Conditional Heteroscedasticity (GARCH) EGARCH	Ch 8
<b>15</b>	27 Nov 12	<u>Panel Data Models</u> Characteristic of Data and Problems. Model with Heteroscedasticity, Autocorrelation and Cross-sectional Correlation.	Ch 10
	29 Nov 12	<u>Panel Data Models</u> Fixed Effect Models. Random Effect Models.	Ch 10
<b>16</b>	<b>13 Dec 12</b> <b>9.00-12.00hrs</b>	<b>Final Exam</b>	

### **Grading:**

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|-----------------|-------------|---|
| 1. Assignments  | 20%         |   |
| 2. Midterm Exam | 30%         | (Thursday, October 4, 2012, 9.30 – 11.00 hrs)   |
| 3. Final Exam   | <u>50%</u>  | (Thursday, December 13, 2012, 9.00 – 12.00 hrs) |
|                 | <u>100%</u> |   |

## **Important Dates:**

Classes Begins	August 14, 2012
Adding and Dropping Courses	August 14 – 28, 2012
Midterm Exam Period	October 1 – 6, 2012 (No Lectures)
<b>Midterm Exam</b>	<b>October 4, 2012 (9.30 – 11.00 hrs)</b>
Course Withdrawal with “W”	October 17 – 22, 2012
Class Ends	December 1, 2012
<b>Final Exam</b>	<b>December 13, 2012 (9.00 – 12.00 hrs)</b>

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