



B.E. International Program



Faculty of Economics, Thammasat University

Course Syllabus

INTRODUCTORY ECONOMETRICS (EE325)

Semester: 2/2011 (January – April 2012)
Instructor: Phongthorn Wrasai
Lecture Time: Tuesdays & Thursdays, 11:00-12:30

Office: Room 471, 4th Floor

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Office Hours: Tuesdays & Thursday, 13:30-16:30 or by appointment

Lecture Venue: Room 303, Faculty of Economics

Course Description: Application of statistical and economic theories in analyzing economic data, with emphases on parameter estimation techniques and applications of simple and multiple regression models to economic analyses. Use of computer application in practice is also covered.

Prerequisites: EE211, EE212, MA216 (or MA211), and ST216 (or ST211).
(Credits will not be awarded to students who are taking or have completed EE 425)

Aims and Objectives: This course provides an introduction to basic results and techniques of econometric theory. The emphasis will be on principles of econometrics and the application of econometric techniques rather than the derivation of theoretical statements. It is expected that at the completion of the course, students will be able to employ econometric investigation in their preparation for writing a seminar paper and to read critically empirical literature.

Instructor's Note: This is an introductory course for econometric analysis. To understand and be able to apply it effectively, you need to learn some basic theories and the reasoning underlying an estimated equation. Some applied examples will be discussed in class but exercises in homework will provide various examples of econometric application for students. Students are expected to use an econometrics computer package (either EViews or Stata) to do the homework. Homework

assignments are expected to be handed on time. Late submission will be penalized 20% per day from the total scores of that assignment.

Assessment:

Homework Assignments	10 points
Quizzes	10 points
Midterm Exam	35 points
Final Exam	45 points

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.

Required Textbooks:

- *Gujarati, D.N. (2009) Basic Econometrics. 5th ed. Singapore, McGraw-Hill. (G)
- Wooldridge, J.M. (2006) **Introductory Econometrics: A Modern Approach**. 3rd ed. Thomson South-Western. (W)

Recommended Texts:

- Jame H. Stock and Mark W. Watson, **Introduction to Econometrics**, 2nd Edition, Boston: Pearson Addison Wesley (2007)
- Studenmund, A. H. **Using Econometrics: A Practical Guide**, Harper Collins Publishers (2006 or Latest Edition)
- William E. Griffiths, R. Carter Hill and George G. Judge, **Learning and Practicing Econometrics**, John Wiley & Sons (1993 or latest edition)
- Jeffrey M. Wooldridge, **Econometric Analysis of Cross Section and Panel Data**, MIT Press; 1 edition (October 1, 2001) ISBN-10: 0262232197 ISBN-13: 978-0262232197
- Marno Verbeek, **A Guide to Modern Econometrics**, Wiley (May 27, 2008) ISBN-10: 0470517697 ISBN-13: 978-0470517697
- Joshua D. Angrist and Jörn-Steffen Pischke, **Mostly Harmless Econometrics: An Empiricist's Companion**, Princeton University Press (2009) ISBN-13: 978-0-691-12035-5

Important Dates

Class Begins	January 10, 2012
Adding and Dropping Course	January 9-23, 2012
Midterm Exam Period	February 27- March 3, 2012 (No Lectures)
Midterm Exam	Tuesday, February 28th, 2012; 11.00-12.30
Course Withdrawal with "W"	March 15-21, 2012
Class Ends	April 26, 2012
Final Exam	Friday, May 10th, 2012; 09.00-12.00

Course Outline

1. Overture: The Nature of Econometrics and Economic Data

- 1.1 What is Econometrics?
- 1.2 Methodology of econometrics
- 1.3 Types of economic data

Read: Gujarati: Introduction and Ch. 1

2. Review of Basic Probability Concepts

- 2.1 Random variables
- 2.2 Sampling and estimators
- 2.3 Desirable properties of estimators

Read: Gujarati: Appendix A; Woodridge: Appendices A, B, C

3. Simple Linear Regression Model

- 3.1 Meaning of linear model and Statistical vs. Deterministic Relationships
- 3.2 Method of Ordinary Least Squares (OLS)
 - 3.2.1 Model and assumptions
 - 3.2.2 Principle of OLS estimation and derivation of estimators
 - 3.2.3 Properties of OLS estimators
(The Gauss – Markov Theorem)
 - 3.2.4 The coefficient of determination (R^2)
- 3.3 Normality Assumption for Disturbance Term
 - 3.3.1 Properties of OLS estimators
 - 3.3.2 Maximum Likelihood Estimation (MLE)
- 3.4 Application to economic data
 - 3.4.1 Consumption function
 - 3.4.2 Production function

Read: Gujarati: Chs.1-4; Woodridge: Ch. 2

4. Interval Estimation and Hypothesis Testing

- 4.1 Confidence interval for regression coefficients
- 4.2 Hypothesis testing (t test)
- 4.3 Regression and Analysis of Variance (F test)
- 4.4 Prediction

Read: Gujarati: Ch. 5

5. Alternative Functional Forms and Other Extensions

- 5.1 Regression through the origin
- 5.2 Scaling and units of measurement
- 5.3 Functional forms of regression model

Read: Gujarati: Ch. 6

6. Multiple Regression Model

- 6.1 Assumptions and OLS estimation
- 6.2 Meaning of partial regression coefficients
- 6.3 The multiple coefficient of determination R^2 and adjusted R^2
- 6.4 Application to economic data

Read: Gujarati: Ch. 7; Woodridge: Ch. 3

7. Statistical Inference in the Multiple Regression Model

- 7.1 Normality assumption and hypothesis testing on individual regression coefficients (t test)
- 7.2 Testing the overall significance (F test)
- 7.3 Testing the equality of two regression coefficients
- 7.4 Testing for linear restrictions
- 7.5 Testing for equality or stability of parameters (Chow test)
- 7.6 Testing the functional form of regression
- 7.7 Prediction with a multiple regression model

Read: Gujarati: Ch. 8; Woodridge: Chs. 4, 6

8. Dummy Variable Regression Models

8.1 Nature of dummy variable

8.2 Use of dummy variable in cross-sectional data

8.2.1 ANOVA models

8.2.2 Regression with a mixture of quantitative and qualitative regressors.
(ANCOVA models)

8.3 Dummy variable alternative to Chow test

8.4 Interaction effects using dummy variable

8.5 Use of dummy variable in time series data

8.5.1 Effect on intercept and slope

8.5.2 Seasonal analysis

8.6 Piecewise linear regression

Read: Gujarati: Ch. 9; Woodridge: Ch. 7
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9. Relaxing the Assumptions of the Classical Linear Regression Model

9.1 Multicollinearity

9.2 Heteroscedasticity

9.3 Autocorrelation

9.4 Specification error

Read: Gujarati, Chs. 10-13; Wooldridge: Chs. 3, 4, 8, 12
