

# **ECON 7033 Topics in Econometrics: Part I**

National Tsing Hua University

Spring 2009

Instructor: CY SIN

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Time and Location: Tuesday 9:00am-12:00noon, TBA

Office Hours: By appointment

Teaching Assistant: TBA

Teaching Assistant Office Hours: Not Offered

Course Description: This course is designed for the first-year Ph.D. Economics graduate students. The basic asymptotic theory will be visited after reviews on master level econometrics. And then the popular estimation methods, especially those developed for time series economic data will be discussed.

Prerequisites: ECON 5033 or an equivalent graduate level Econometrics

Textbooks:

- (1) Bai, J. (2006): Lecture Notes on Time Series Econometrics.
- (2) Beriens, H. (2004): Lecture Notes on Time Series Econometrics.
- (3) Greene, W.H. (2003): Econometric Analysis, 5<sup>th</sup> Edition. NJ: Prentice Hall.

Software: You are welcome to use any econometric or statistic software such as Matlab, TSP, Gauss, Stata, Eviews, or Limdep.

Grading: There will be assignments (20%) including both problem solving and computer tasks. We will also have an evaluation examination (80%).

Tentative Topics in Econometrics: Part I

- (1) Review on Linear Regression Models: Multicollinearity and Normality Test

- (2) Basics of Time Series Econometrics: The Stable Case
- (3) VAR (Vector Autoregression) and Impulse Response Analysis: The Stable Case
- (4) Basics of Time Series Econometrics: The Unstable Case and Unit Root
- (5) Cointegration: Times Series and Panel Data Analyses
- (6) VAR (Vector Autoregression) and Impulse Response Analysis: The Stable Case
- (7) Time Series Econometrics: GARCH (Generalized Autoregressive Conditional Autoregression) and ACD (Autoregressive Conditional Duration)

- End of Part I -

# ECON 7033 Topics Econometrics: Part II

NATIONAL TSING HUA UNIVERSITY

Spring 2009

**Instructor:** Eric S. Lin

**Contact Information:** Office: CTM-712, Email: [slin@mx.nthu.edu.tw](mailto:slin@mx.nthu.edu.tw), Phone: 574-2729

**Time and Location:** Monday 9:00-12:00, TBA

**Office Hours:** By appointment

**Course Webpage:** Blackboard System – <http://elearn.nthu.edu.tw/bin/index.pl>

**Teaching Assistant:** TBA

**Teaching Assistant Hours:** Not Offered

## **Course Description:**

This course is designed for the first-year Ph.D. Economics graduate students. The basic asymptotic theory will be visited after reviews on master level econometrics. And then the popular estimation methods such as GMM and MLE will be introduced. Some of the hot issues in the field of microeconometrics will be touched as well. In addition to theoretical derivation, it will provide an initial opportunity for you to develop the skills to conduct and understand empirical works. The coursework will be theoretical in nature, but students will also be required to use the (relatively) more advanced methods to estimate certain models and test certain hypotheses.

## **Prerequisites:**

ECON 5033 or an equivalent graduate level Econometrics

**Textbook:**

Basically, I will hand out weekly lecture notes which are the summary of literature and textbooks.

- My Lecture Notes.
- [G] Greene, W. H., 2003, *Econometric Analysis*, 5th edition, Prentice Hall.

**References:**

Note that you don't need to buy the following references. If you are not comfortable with basic concepts of econometrics, it would be helpful to consult to above textbooks and the following references anytime.

- [WJ] Wooldridge, J. M., 2002, *Econometric Analysis of Cross Section and Panel Data*, MIT Press.
- [K] Kennedy, P. A., 1998, *A guide to Econometrics*, 4th edition, MIT Press.
- [DS] DeGroot M. H. and M. J. Schervish, 2002, *Probability and Statistics*, 3rd edition, Addison Wesley.
- [CB] Casella, G. and R. L. Berger, 2001, *Statistical Inference*, 2nd edition, Duxbury.
- [R] Ruud, P. A., 2000, *An Introduction to Classical Econometric Theory*, Oxford.
- [DM] Davidson, R. and J. D. MacKinnon, 2004, *Econometric Theory and Methods*, Oxford.
- [W] White, H., 2000, *Asymptotic Theory for Econometricians*, Academic Press.

**Software:** You are welcome to use any econometric or statistic softwares such as *Matlab*, *TSP*, *Gauss*, *Stata*, *Eviews*, or *Limdep*.

**Grading:** There will be weekly assignments including both problem solving and computer tasks. We will also have an evaluation exam after seven lectures. Note that overdue assignment will **NOT** be accepted. They will count toward the grade as follows.

Assignments	20%
Evaluation Exam	80%

**Course Organization:** 9 weeks / lectures [Tentative!!]

1. Organization
2. Review I
3. Asymptotic Theory I
4. Asymptotic Theory II
5. Generalized Method of Moment & MLE I
6. Generalized Method of Moment & MLE II
7. Endogeneity
8. Weak Instruments
9. Evaluation Exam [In class]