

## ECON 7033 Topics in Econometrics (計量經濟學專題)

Department of Economics  
National Tsing Hua University  
Spring 2010

### Instructors:

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**Time and Venue** (Tentative): Monday 9:00am-12:00pm, CTM-733

**Office Hours:** By appointment

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

**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 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

### Textbooks:

[L] Lin, E.S., 2010, Lecture Notes.

[G] Greene, W. H., 2008, Econometric Analysis, 6th edition, Prentice Hall.

### References:

Note that you do not 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.

[BA] Bai, J., 2006, Lecture Notes on Time Series Econometrics.

[BE] Beriens, H., 2004, Lecture Notes on Time Series Econometrics.

**Software:** You are welcome to use any econometric or statistical software 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%

**Part I Course Organization:** 9 weeks / lectures (Tentative)

- Occasional lecture notes, which are the summary of the literature and the textbooks, will be handed out.
- 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 Unstable Case
- 7. GARCH (Generalized Autoregressive Conditional Autoregression) and ACD (Autoregressive Conditional Duration)

**Part II Course Organization:** 9 weeks / lectures (Tentative)

- Weekly lecture notes, which are the summary of the literature and the textbooks, will be handed out.
- 1. Organization
- 2. Review
- 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]

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