

# ECON 5036 Applied Microeconometrics

NATIONAL TSING HUA UNIVERSITY

Fall 2014

**Instructor:** Eric S. Lin

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**Time and Location:** Tuesday 9:00-12:00, CTM-732

**Office Hours:** Monday 1:00-2:00 pm or by appointment

**Course Webpage:** iLMS – <http://lms.nthu.edu.tw/>

**Teaching Assistant:** N/A

**Teaching Assistant Hours:** N/A

## Course Description:

Due to the extensive availability of individual-level (micro) data sources in applied economic analysis, it is getting increasingly important to understand the techniques available to the microeconometrician in empirical work. It is essential to relate these techniques to economic theory. We then obtain the insights drawn from the estimation of microeconomic models of choice. The econometric techniques of handling those microeconomic model move beyond the standard tools of econometric analysis.

This class is a graduate level field course which provides you with sufficient background in modern microeconometrics to choose techniques fitted both to the data and the economic model. We will focus on discrete choice models, limited dependent variable models, panel data models and causal inference (or duration model). The goal is to build up a foundation for applied research in economics. The coursework will be theoretical in nature, but students will also be required to use the methods to estimate certain models and test certain hypotheses.

## Prerequisites:

ECON 5033 or an equivalent graduate level Econometrics

**References:**

Basically, I will hand out weekly lecture notes which are the summary of literature and textbooks. Note that you don't need to buy all the following references. If you are not comfortable with basic concepts of econometrics, it would be helpful to consult to the following references anytime.

- [JD] Johnston and DiNardo, 1997, *Econometric Methods*, 4th edition, McGraw Hill.
- [G] Greene, W. H., 2011, *Econometric Analysis*, 7th edition, Prentice Hall.
- [CT] Cameron A. C. and P. K. Trivedi, 2005, *Microeconometrics*, Cambridge.
- [W] Wooldridge, J. M., 2010, *Econometric Analysis of Cross Section and Panel Data*, 2nd edition, 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.

Of course, there are lots of textbooks related to this course such as the classical book by G. S. Maddala in 1983. You could easily check it out from the library. If necessary, you are welcome to consult with me for more references.

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

**Grading:** A couple of problem sets will be passed out during the semester. There will be some theoretical derivation and computer assignments with real or simulated data. Note that overdue assignment will **NOT** be accepted. There will be a midterm, a term paper proposal, and a term paper in final form. Notice that the proposal should be approved to move on your project. I will give you the guideline for the proposal later on. Your final grade is computed as follows.

Assignments	20%
Midterm	30%
Proposal	20%
Term Paper	30%

**Course Organization:** 18 weeks / lectures [Tentative!!]

**Warm Up**

1. Sept. 16: Organization
2. Sept. 23: GMM and MLE

**Discrete Choice Models**

3. Sept. 30: Binary Choice Model I
4. Oct. 7: Binary Choice Model II
5. Oct. 14: Multinomial Choice Model

**Limited Dependent Variable Model**

6. Oct. 21: Truncated Regression Model
7. Oct. 28: Term paper proposal presentation
8. Nov. 4: Censored Regression Model
9. Nov. 11 Sample Selection Model

**Panel Data Analysis**

10. Nov. 18: Midterm Exam [In class]
11. Nov. 25: Static Panel Data Model I
12. Dec. 2: Static Panel Data Model II
13. Dec. 9: Dynamic Panel Data Model I
14. Dec. 16: Dynamic Panel Data Model II

**Causal Inference**

15. Dec. 23: Treatment Effect Model I
16. Dec. 30: Treatment Effect Model II
17. Jan. 6: Term Paper Presentation
18. Jan. 13: Term paper due