ECON 5033 Econometrics I

National Tsing Hua University

Fall 2019

Instructor: Eric S. Lin

Contact Information: Office: CTM–712, E-mail: `slin@mx.nthu.edu.tw`, Tel: 574-2729

Time and Location: Tuesday 9:00–12:00, CTM–203

Office Hours: By appointment

Course Webpage: iLMS – `http://lms.nthu.edu.tw/`

Teaching Assistant: Ya-Wen Tseng, E-mail: `sharon2203@livemail.tw`

Teaching Assistant Hours: Monday 16:30–17:30, CTM–729

Course Description:
   This course is designed for first-year Economics graduate students. The basic methods, modern econometric methods and theory are covered. The intention is that the material will provide a foundation for applied research in economics. It will provide an initial opportunity for you to develop the skills to conduct and understand empirical work. 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:
   Basic calculus, familiarity with probability, statistics, and matrix algebra will be assumed.

Textbook:

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

- My Lecture Notes.

- [JD] Johnston and DiNardo, 1997, *Econometric Methods,* 4th edition, McGraw Hill.

- [G] Greene, W. H., 2011, *Econometric Analysis*, 7th 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.

- [W] Wooldridge, J. M., 2008, *Introductory Econometrics: A modern approach*, 4th edition, South-Western.

- [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.

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

Grading: There will be weekly assignments[1], two midterm exams and a final. Note that overdue assignment will **NOT** be accepted. They will count toward the final grade as follows.[2]

Assignments	10%
Midterm I	20%
Midterm II	30%
Final	40%.

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[1]Class assignments will be passed out approximately every week. These assignments will include both problem solving and computer tasks.

[2]Bonus will be awarded for the typo corrections.

Course Organization: lectures [Tentative!!]

1. Organization

2. Probability and statistical review

3. Multiple regression model [I]

4. Multiple regression model [II]

5. **<u>Midterm Exam I</u> [In class, Oct.]**

6. Multiple regression model [III]

7. Generalized least square

8. Autocorrelation

9. Heteroskedasticity

10. **<u>Midterm Exam II</u> [In class, Nov.]**

11. Instrumental variable [I]

12. Instrumental variable [II]

13. Numerical optimization

14. Discrete choice model

15. Sample selection model

16. **<u>Final Exam</u> [In class, Dec.]**