Econ 870
Advanced Econometrics
Fall 2014

Instructor: Ju Hyun Kim
E-mail: juhkim@email.unc.edu
Phone: 919-966-5338
Office: Gardner 200G
Office Hours: Tues 1:55-2:55 pm & Thurs 10:55-11:55 am

Classes: Tu, Th 12:30 – 1:45 pm in Gardner 106

TA: Matt Forsstrom
E-mail: forsstro@live.unc.edu
Office Hours: Th 2-4 pm
Recitation: F 09:00 - 10:15 in Gardner 307

Prerequisite:
The pre-requisites are Econ 770 and Econ 771.

Course Description:
The aim of this course is to give students more in-depth views of econometric models and a firm understanding of econometric theory. The lecture broadly consists of three parts: identification, classical estimation methods and their asymptotic properties, and modern inference techniques.

Grading:
Your final grade will be based on: three midterm exams (10+10+10=30%), final exam (50%), and problem sets (20%). Problem sets will be assigned every week.

Textbook:
There is no required textbook for this course. The following two books, however, are highly recommended to read:
(CT) "Microeconometrics" by Colin Cameron and Pravin Trivedi.
(W) "Econometric Analysis of Cross Section and Panel Data" by Jeffrey Wooldridge

Recommended Supplemental Reading:

(A) "Advanced Econometrics" by Amemiya (Harvard University Press 1985)
(DH) "Bootstrap Methods and Their Application" (Cambridge Series in Statistical and Probabilistic Mathematics) by A. C. Davison and D. V. Hinkley.
(FMP) "Econometric Modeling and Inference" by Florens, Marimoutou and Peguin-Feissolle. (Translated by: J. Perktold and M. Carrasco)
(Ha) "Econometrics" by B. Hansen (draft graduate textbook),
http://www.ssc.wisc.edu/~bhansen/econometrics/

(Ho) "The Bootstrap in Econometrics", by J. Horowitz, in Handbook of Econometrics, Vol. 5, ch. 52, J.J. Heckman and E.E. Leamer, eds., Elsevier Science. and James MacKinnon, same title, Economic Record, or available as http://www.econ.queensu.ca/working_papers/papers/qed_wp_1028.pdf

(LR) "Nonparametric Econometrics: Theory and Practice" by Li, Racine, (Princeton University Press 2006)

(Man) "Identication for Prediction and Decision," by Manski (Harvard University Press 2007)

(Mat) Matzkin, R. "Nonparametric Identification in Structural Economics Models," Annual Review of Economics, http://www.econ.ucla.edu/people/papers/Matzkin/Matzkin616.pdf

(NM) Newey, W. K. and McFadden, D. "Large Sample Estimation and Hypothesis Testing," Handbook of Econometrics, Volume 4, 1994.

Course Outline and Exams
(Class contents may change during the course of the semester. However, exam dates will not change)

1. Review of Linear and Nonlinear Models (2 lectures)
- Projection theory
- Linear model
- Nonlinear model
Suggested Reading: (Ha: Ch 2,3,4,7)

2. Identification (6 lectures)
2.1. Parametric Identification
- Without endogenous regressors
- With endogenous regressors
2.2. Nonparametric Identification
- Additively separable models
- Nonseparable models
Suggested Reading: (Man), (Mat), and many research papers announced in class

Midterm 1: Sep. 16

3. Elementary Asymptotic Theory (3 lectures)
Lecture notes

4. Extremum Estimators (8 lectures)
- Review of GMM, NLLS, and MLE
- Consistency
- Asymptotic normality

Midterm 2: Oct. 14

- Asymptotic variance estimation
- Efficiency
- Testing
- Two-step estimation

Suggested Reading: (W: Ch. 12-14), (H, Ch. 7-8), (NM)

5. Bootstrap (3 lectures)
- Inference using the bootstrap
- Failure of the bootstrap

Suggested Reading: (DH), (Ho), (Ha: Ch. 10)

Midterm 3: Nov. 13

Suggested Reading:

6. Nonparametric Estimation (3 lectures)
- Kernel density estimation
- Nonparametric regression

Suggested Reading: (LR: Ch. 1), (Ha: Ch. 11)

Final: Dec. 6