Course Overview and Objectives:

This is the third course of a three course sequence in first-year graduate econometrics. Students are expected to have taken Economics 241A and 241B and to be familiar with the material in those courses. This course will be organized in two parts.

The first part of the course will present and extend the basic concepts of asymptotic econometric theory, some of which have already been introduced in 241A and 241B. The objective of this section is to provide the students with the tools necessary to derive the large sample properties of extremum estimators within a general framework. The results will then be applied to commonly used estimators, including least squares, maximum likelihood, and generalized method of moments.

The second part of the course will focus on nonlinear cross-sectional econometric models, including limited dependent variables models, selection models, and panel data models. Time permitting, we may also cover additional topics, like asymptotic efficiency, quantile regression, the bootstrap, nonparametric estimation, two-step estimation, duration models, etc.

There will be a midterm exam, final exam (held during the examination period) and 4 problem sets (only the 3 best will count). The problem sets will include both theoretical and data analysis exercises, to be answered with MATLAB. The final grade will be determined as follows: midterm 30%, final 40% and problem sets 30%. Students can work individually or in groups of 2 students (1 copy per group). Late problem sets will not be graded.

Teaching Assistant:
Bryan Leonard

Class Time:
Tuesday and Thursday, 12:30-1:45, NH 2212

Home Page:

Office Hours:
Friday 1:30 - 3:00 or by appointment

Midterm: Thursday May 5 (in class).
Readings:

**Required Handbook of Econometrics Chapter:**
Handbook of Econometrics, Volume 4. (available from the class webpage)

**Recommended Textbooks:**
Press (earlier edition also is fine)

B. Hansen: *Econometrics*, 2015. Available freely online:
http://www.ssc.wisc.edu/~bhansen/econometrics/

University Press

Course Outline:

Below is a tentative outline of the topics we will cover.
Additional readings may be assigned as the quarter progresses

0. Review of Limit Theorems for Sequences of Random Variables and Large Sample
Results (in Friday Section)
   Readings: Wooldridge Chapter 3

I. Large Sample Properties of the OLS Estimator and Hypothesis Testing in Large Samples
   Readings: Wooldridge Chapter 4

II. Large Sample Properties of Extremum Estimators and Related Inference:
   Readings: Newey and McFadden chapter,
             Wooldridge Chapters 12-14

III. Qualitative Response Models, Censored Regression Models, Selection Models, and
     Duration Analysis
   Readings: Wooldridge Chapters 15-17, 19, 22

IV. Linear and Nonlinear Instrumental Variables Estimation and Inference
   Readings: Wooldridge Chapters 5 and 14

V. Panel Data Models
   Readings: Wooldridge Chapters 10-11