Economics 551: Econometrics II

Spring 2017

Instructor:	Tim Armstrong
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Office Hours:	Monday, 10:00am-11:30am or by appointment
TA:	Wayne Gao (wayne.gao@yale.edu)
Section:	TBD
Office Hours:	TBD
Course Time and Location:	Monday and Wednesday, 1:00pm-2:20pm, Location TBD
Course Webpage:	https://canvas.yale.edu

Course Description

- This is the second half of a first year Ph.D. course in econometrics. We will cover linear regression, instrumental variables and general nonlinear estimating equations including maximum likelihood and generalized method of moments (GMM). We will also briefly cover some topics in time series, panel and limited dependent variable data and, if time, other topics such as nonparametric statistics and the bootstrap.
- Students are responsible for weekly reading and problem sets, including data work using statistical software such as Stata, R or Matlab.
- TA sections will review problem sets and material from lecture, as well as some programming using statistical software.

Main Texts

This class will use two main texts, both of which are available online:

- Bruce Hansen, *Econometrics*. Unpublished manuscript, January 2017 `http://www.ssc.wisc.edu/~bhansen/econometrics/`

- Newey, Whitney K., and Daniel McFadden. "Large Sample Estimation and Hypothesis Testing." In *Handbook of Econometrics*, edited by Robert F. Engle and Daniel L. McFadden, 4:21112245. Elsevier, 1994.
  `http://www.sciencedirect.com/science/article/pii/S1573441205800054`

Software

- Problem sets in this course will include data work using computational software. Students will be free to use the software package of their preference. Stata, R and Matlab are popular choices.

Other Texts (not required)

The following texts cover parts of the material in this course, and may be useful for further reading:

- Greene, William H. *Econometric Analysis.* 7th edition. Boston: Prentice Hall, 2011.
- Hayashi, Fumio. *Econometrics.* Princeton: Princeton University Press, 2000.
- Ruud, Paul A. *An Introduction to Classical Econometric Theory.* 1st edition. New York: Oxford University Press, 2000.
- Wooldridge, Jeffrey M. *Econometric Analysis of Cross Section and Panel Data.* 2nd edition. Cambridge, Mass: The MIT Press, 2010.

Evaluation

- Grades will be based on problem assignments (20%), a mid-term exam (30%), and a final exam (50%).

Midterm Exam (in class)

- Wed, March 1, 1pm-2:20pm

Final Exam

- Time and location TBD

Homework Policies

- Problem sets must be turned in by the end of class on the given due date. Written problem sets are to be turned in to the TA's mailbox in 28 Hillhouse. Computational problem sets will be turned in online through Canvas.

Course Organization

Topics	**Readings**
Introduction	Hansen, ch. 1
Linear regression	Hansen, ch. 2-9
Instrumental variables	Hansen, ch. 10
Estimating equations	Newey and McFadden, Hansen ch. 11
Time series	Hansen, ch. 17-18
Limited dependent variables	Hansen, ch. 19, (further reading: Wooldridge ch. 15-17, 18-20)
Panel data	Hansen, ch. 20, (further reading: Wooldridge ch. 10-11)
Bootstrap	parts of Hansen ch. 13 (time permitting)
Nonparametric estimation	lecture notes posted on Canvas (time permitting)