

Ec 571 Advanced Econometrics Syllabus

Winter 2021
Tuesday/Thursday 4:40-6:30 p.m.
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This is the continuation of Ec 570 covering advanced topics in econometrics. The focus of this course are heteroskedastic, time-dependent and endogenous regression models of different forms, including auto-regressive time series, instrumental variables, panel data, systems of regression equations, and simultaneous equations models.

Texts

R. Davidson and J.G. MacKinnon, *Econometric Theory and Methods*, 2003, ISBN-13 978-0195123722. More concise and intuitive to me.

or/and

W.H. Greene, *Econometric Analysis*, 7th or 8th edition, 2011, ISBN-13 978-0131395381 or 2017, ISBN-13 978-0134461366. More encyclopedic - excellent reference.

Additional recommended texts:

Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach* (any edition). Good undergraduate text which is *not* sufficient for this course, but it is one of the few lower level texts which touches on most of the topics in the course and may help students who like to see a simple version first.

Jeffrey M. Wooldridge, *Econometric Analysis of Cross Section and Panel Data* (2nd edition). This is an excellent and challenging text that approaches regression from a conditional expectation approach. It covers most of the topics in the course except for time series estimation.

Software

Stata 14+, [StataCorp.](http://www.statacorp.com)

Stata software is available on the computers in the Economics Lab, CH-230.

The Stata/IC version may be used for the class. You can order this or other versions through the Stata [GradPlan](http://www.statacorp.com).

Recommended text for Stata:

C. F. Braum, [An Introduction to Modern Econometrics Using Stata](http://www.statacorp.com).

Course Topics

Topic	Davidson & MacKinnon chapters	Greene 7 th or 8 th Ed. chapters
OLS Review	2-5, especially 3.1-3.6	2-5
Method of Moments	1.5	13.1-13.2
Maximum Likelihood	10.1-10.2	14.1-14.4
Heteroscedasticity	7.1-7.4	9
Autocorrelation	7.6, 7.7 up to "Tests Based on the GNR", 7.8, 13.1, 13.7	20
Instrumental Variables Estimation	8.1-8.4, 8.6-8.7	8
Panel Data	7.10	11
Systems of Regression Equations	12.1-12.2 up to "A GMM Interpretation"	10
Simultaneous Equations Models	12.4	13

Homework

- Problem Set 1: Due 1/28
- Problem Set 2: Due 2/11
- Problem Set 3: Due 3/2
- Problem Set 4: Due 3/11

Course Expectations

For this course, there are two tests: midterm and final. In addition, there are 4 homework assignments (about once every two weeks). Also there is a research project due at the end of term. The time schedule and grade distribution are as follows:

Time Schedule	Grade Distribution
Midterm (Tuesday, February 9, in class)	(30%)
Final (Tuesday, March 16, 5:30-7:20pm)	(30%)
Project (Thursday, March 18 or earlier)	(20%)
Homework	(20%)

Guidelines for Writing a Course Project

Format

1. 5-10 pages typed (double-space and wide margins).
2. The format of the paper should follow a standard journal article closely.

3. The model presented must be an original econometric model covering problems of estimating and testing model specifications. Continuation of EC 570 project is acceptable, but in that case, explain clearly what is novel for the EC 571 project and submit the EC 570 project as well.
4. Supporting data and computer program printout have to be included, but not counted for the number of pages.

Contents

1. Introduction and brief discussion of the main results.
2. Technical description of the econometric model constructed: estimation, hypothesis testing, regression diagnosis, and remedial methods.
3. Economic interpretation of the estimated model: the use of the model in practice.
4. References (including data sources).

Grade

The project is evaluated based on its originality, creativity, and consistency with the format and content requirements described above.

Deadlines

Project Proposal (1 page typed): February 4 or earlier.
Final Project: March 18 or earlier.