EC403 - Econometric Theory

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Armstrong 341 - Block 7 - Spring 2017

Contact Information

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Office Hours

By appointment

Course Objective

Econometrics is the branch of economics that develops empirical models in order to analyze relationships between economic variables present in all types of economic data. This requires a deep understanding of different estimation techniques and identification strategies.

The objective of this course is, therefore, to introduce you to the basics of estimating and interpreting econometric models of different types of economic data. In order to achieve this objective, you will be exposed to both theory, which will require some mathematical derivations, and applications, which will require the use of Stata and in some cases R. We may also use Excel when appropriate.

Another goal of this course is to get you prepared to properly analyze the data you will be using for your senior thesis. And, in order to achieve this, you will be required to code your own econometric model using R.

Course Structure

There will be 2 main components to this course. First, we will learn the theoretical foundation of every model we estimate. Second, we estimate these models using Stata and/or R.

The theoretical portion of the course will be devoted to building the foundations for properly analyzing economic data. The applied portion of the course will de facto analyze such models.

Required Textbook

Wooldridge, Jeffrey M.: "Introductory Econometrics: A Modern Approach," South-Western Cengage Learning, 5th ed., 2013

Cameron, Colin A. and Trivedi, Pravin K., "Microeconometrics Using Stata," Stata Press, 1st ed. (revised), 2010

Kleiber, Christian and Zeileis, Achim, "Applied Econometrics with R," Springer, 1st.ed., 2008

Course Assignments and Weights

Three "Exams" - 20% each

Problems - 15%

R Project - 20%

Reflections - 5%

GRADE DISTRIBUTION

A	100-94	B	87-83	C	77-73	D	60-50
A-	94-90	B-	83-80	C-	73-70	NC	50-0
B+	90-87	C+	80-77	D+	70-60		

EXAMS

All exams are take-home, open-book-open-note. There will be a theoretical and an applied portion to all exams. The theoretical portion of the exam will test your understanding of econometric theory requiring proofs and derivations. You will not be required to use any statistical software for this portion of the exam. The applied portion of the exam will test your understanding of data analysis and you will be required to use Stata or R for this portion of the exam.

All exams are to be taken individually and no outside help apart from the textbook and your notes is permitted.

PROBLEMS

There will be multiple take-home problems throughout this block. Each problem can be completed in groups of no more than 4 students. I strongly encourage you to work in groups. For each problem set, you will have at least a couple of days to finish it.

REFLECTIONS

Throughout the block, you will have 17 self reflective activities that you are required to complete. These activities are designed to get you to reflect about the class, your study habits, organization, and your ability to think about how you think. The hope here is that you develop individualized learning processes that you can transfer to other classes and other experiences you will encounter in the future.

R PROJECT

At the end of the block you are required to turn in an econometric model completely coded in R. You may use data from an already published paper or data from our textbooks or you may collect your own data. You will need to identify a questions, construct an econometric model, and estimate the model using R. You may not use the pre-programmed routines in R. You have to program everything yourself. Think of this as cooking a meal from scratch. Once you have your results, you need to type a short Results Section as if you were writing an econometric paper. This assignment can be completed in pairs.

TENTATIVE COURSE OUTLINE

Week 1:
Cross-Sectional Analysis:
Simple Linear Regression
Multiple Linear Regression: Estimation and Inference
Week 2:
Multiple Linear Regression: Binary regressors, diagnostics, and further issues
Week 3:
Endogeneity - IV and 2SLS

Limited Dependent Variable Models:
Probit and Logits
Intro to Time Series: (if time permits)
Finite Distributed Lag Models
Week 4:
Intro to Panel Data: (if time permits)
Pooled Models
Fixed and Random Effects

ATTENDANCE

Attendance is not mandatory; however, do not expect me to cover material taught in class during office hours if you were not present for that particular day unless you have proper documentation justifying your absence.

CHEATING

For every assignment in this course you must follow CC's honor code. If you have not yet done so, I encourage you to read the honor code, which can be found in the Pathfinder under Honor Council Constitution. The penalty for cheating in this course is a final grade of no credit (NC).

ACCESSIBILITY RESOURCES

If you have a disability and require accommodations for this course, please speak with me preferably by no later than Wednesday, March 29, so that your needs may be appropriately met. If you have not already done so, you will need to register with Accessibility Resources (227-8285), the office responsible for coordinating accommodations and services for students with disabilities.