Course Syllabus

ECO 82200
<u>Econometrics II</u>

City University of New York Graduate Center
Spring 2020

Professor and TA Contact Information

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Office hours: Thursday 1:00-2:00 pm
Lab session: Thursday 12:00-2:00 pm, Room 3209

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Students are expected to have completed Econometrics I and to be competent in calculus, linear algebra, and mathematical statistics. Familiarity with a statistical/econometric computer language that enables practical applications of the techniques discussed in this course (e.g., RATS, Stata, SAS, SPSS, EViews, Matlab, R, etc.) will be useful in completing homework assignments.

Course Description

This course is the second of a two-semester graduate level study of the theory and practice of econometrics. The course builds on the foundations of Econometrics I and expands the set of econometric tools and techniques that are useful in applied econometric research. The objective is to work through a common set of principles, to formulate the theoretical underpinnings of

various models, to study the workings of many econometric models, to be able to recognize variants of existing models, to develop variations of existing models that fit particular research problems.

Student Learning Objectives/Outcomes

This course promotes student learning in various ways.
1. Understand the standard econometric techniques for analyzing time series data
2. Examine the impact of random walk data on econometric analysis
3. Extend the classical general linear regression model to longitudinal data
4. Extend the classical general linear regression model to multi-equation settings
5. Deepen the understanding of the link between econometric analysis and economic theory
6. Learn to apply the econometric techniques introduced in the lectures to data
7. Strengthen programming skills when using statistical/econometric software

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Textbook Information

Required textbooks:
W.H. Greene, <u>Econometric Analysis</u>, 7th or 8th ed., Upper Saddle River, NJ: Pearson Education (Prentice-Hall), 2012

http://gc.textbookx.com/institutional/index.php?action=browse#books/2274606/

Software and Manual

Regression analysis of Time series (RATS)
https://estima.com/shopcart/rats_special_classroom.shtml

Grading Policy, Assignments, and Exam Dates

There will be a midterm exam, a final exam, homework assignments, research group paper. Class participation is expected, demonstrating familiarity with the material to be covered that day.

	Date	Weights
Midterm	26 Mar	35%
Final	21 May	35%

Quizzes and Assignments	TBA	15%
Group Paper	24 May	15%

The exams cover the theory of econometrics: definitions, concepts, proofs, application, and interpretation, thus linking to learning objectives 1-5. The final exam is not cumulative. Homework assignments deal with developing proofs, working out end-of-chapter exercises, and programming up techniques that are introduced in the lectures. The homework assignments address learning objective 6 and 7 in particular but also support mastery of learning objectives 15. If the circumstances so demand, these timelines are subject to change at the discretion of the Professor.

Course & Instructor Policies

Absence from any exam must be properly documented; otherwise a grade of 0 is assigned to a missed exam. Make-up exams are scheduled within the same week for those who missed an exam with proper documentation.

There is no extra credit work.

It has been the experience of students in the past that the amount of time spent on homework assignments is inversely related to the amount of time spent in preparation for the lectures and study of materials after the lectures.

Homework assignments that involve statistical computing may be completed with RATS or any other software that the student is familiar with. Be advised that use RATS software during the class. In addition, at the GC, people are more familiar with Stata, EViews, Matlab, and R: if you use other software, you may have to figure out things more on your own.

Cellphones and pagers must be turned off. Recording the lecture is not permitted.

The "Lab session" is a weekly study session supervised by the TA for this course. The session is partially evaluative (an approximately weekly lab assignment that is part of the overall grade for Econometrics II), partially structured (planned topics will be discussed) and partially unstructured (time for a free-flowing discussion of homework, lecture material, old exams, end-of-chapter exercises, etc.). The lab is not a place to find out how to do an upcoming homework assignment. Rather, apart from the scheduled topics, the lab offers an opportunity to discuss any econometric question or problem with the TA and with other students. Your own preparation (i.e., getting topics ready, knowing what question to ask) will make the lab most productive.

Reading Assignments

The following is a tentative calendar for this semester. If the circumstances so demand, these timelines and course materials are subject to change at the discretion of the Professor.

Date	Session	Topic	Readings
30 Jan	1	Linear Regression Model (Review) Hypothesis Testing Methodology (Review) Hypothesis Testing and Parametric Restrictions	Ch. 2-5
6 Fed	2	Functional Form and Structural Change Group Presentations (1,2)	Ch. 6
13 Feb	3	Multicollinearity Group Presentations (3-8)	Sec 4.7
20 Feb	4	The Generalized Regression Model and Heteroscedasticity	9.1-9.8
27 Feb	5	Serial Correlation, ARCH, and GARCH	Sec 20.1-20.10
5 Mar	6	Endogeneity and Instrumental Variable Estimation	Sec 8.1-8.5
12 Mar	7	Multi- and simultaneous equation models	Sec. 10.1-10.3, 10.6
19 Mar	8	Nonlinear regression models: Method of Moments Nonlinear Least Squares, Gauss-Newton	Sec. 7.1-7.5
26 Mar	9	Midterm exam	
2 Apr	10	Minimum Distance Estimation and the Generalized Method of Moments	Sec 13.1 – 13.7
9 Apr		Spring Break	
16 Apr		Spring Break	
23 Apr	11	Maximum likelihood estimation Group Presentation (1)	Sec. 14.1-14.7, 14.8, 14.9
30 Apr	12	Panel data Group Presentation (2-4)	Sec. 11.1-11.6, 11.8-11.11
7 May	13	Binary Choice Group Presentation (5-6)	Sec. 17.1-17.3, 17.5, 18.1-18.3
14 May	14	Nonstationary data Group Presentation (7-8)	Ch.21
21 May	15	Final Exam	

Group paper
The research paper is designed to be a practical exercise in applying what you've learned in the course to current economics and finance issues. Each group will have three students. The paper must be no less than ten double-spaced pages and no more than 15. The structure of your paper should be as follows:

1. Abstract
2. Introduction
3. Literature Review
4. Data and Methodology
5. Empirical Analysis
6. Conclusions
7. References

Each group will be required to present its preliminary idea and its final paper in two presentations. Each presentation should not exceed 15 minutes.

Academic Integrity
The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism.

Withdrawal from Class
The administration of this institution has set deadlines for withdrawal of any course. These dates and times are published in the academic calendar. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.