Course Outline for Econometrics
Department of Economics
Rutgers University
Spring, 2018

Course Information

Title: Econometrics
Code: 01:220:322:4
Lecture Times: T-TH 2:50pm–4:10pm
Location: FH-A6
Course site: http://sakai.rutgers.edu
Note: Students enrolled in this site can log onto SAKAI using their EDEN username and get access to this class' site.

Contact Information

Instructor: Fatima Ahmed
Room: New Jersey Hall, Room 402 (CAC)
E-Mail: fahmed@econ.rutgers.edu
Office Hours: Tuesday and Thursday, 1:30-2:30pm and by appointment

Important Dates

Date	Event
Tuesday, Jan 16th	First Day of Classes
Thursday, Feb 22nd in class	First Midterm
Thursday, April 12th in class	Second Midterm
Friday, May 4th 12-3pm	Final exam Date

Course Objective

Econometrics is a set of research tools used to estimate and test economic relationships. The methods taught in this introductory course can also be employed in the business disciplines of accounting, finance, marketing and management and in many social science disciplines. The aim of this course is to provide you with the skills helpful in filling the gap between being "a student of economics" and being "a practicing economist." By taking this introduction to econometrics you will gain an overview of what econometrics is about, and develop some "intuition" about how things work. The emphasis of this course will be on understanding the tools of econometrics and applying them in practice.

Prerequisites

It is expected that all students will have taken principles of economics courses covering both microeconomics and macroeconomics (e.g. 220:102 and 220:103 or 220:200) and an introductory statistics class (e.g. 960:211 or 960:285). It will be assumed that all students have a good command of the material taught in these courses. It is strongly suggested that you review this material at the beginning of this course.

Text and Software

The text for this course is: James H. Stock and Mark W. Watson, Introduction to Econometrics 3rd Edition, Pearson.

The class will also be using MyEconLab and the bundle of the text book and the access to MyEconLab can be purchased online or from teh bookstore. You have a number of options:

• MyEconLab + Looseleaf Package (ISBN 0133848914 or 9780133848915)

• MyEconLab + Bound Text Package (ISBN 0133595420 or 9780133595420)

• MyEconLab access card (all digital) (ISBN 0133487679 or 9780133487671)

• if you already have a copy of the text you can purchase an access code from the bookstore or from Pearson directly.

The software that will be used in this course is STATA. No prior knowledge of this software package is assumed. This package will be introduced in lectures and in the problem sets as the course proceeds. Students can purchase a student version of this software from the following website:

http://www.ihsmarketplace.com/collections/student-version

Lecture Outline

The following is a tentative list of lecture topics. I have indicated the relevant Chapters of the text for each topic. This should be used as a rough guide for your reading. I will give much more detailed reading information during the lectures. The lecture material will be greatly enhanced for you if you are up to date with your readings.

1. Introduction (Chapter 1)

- Brief introduction to course
- Why study econometrics?
- What is an econometric model?
- Sources of data.

2. Review of Statistical Concepts (Chapter 2 and Chapter 3)

- Random Variables
- Controlled vs. uncontrolled experimental data
- Discrete vs. continuous random variables
- Review of probability concepts
- Expected value
- Sample moments of a random variable
- The joint density function
- Marginal density, conditional density and independence
- Covariance and correlation
- The Normal density

3. The Simple Linear Regression Model (Chapters 4, 5, and 17)

- The econometric model
- The least squares principle
- Estimating the econometric model and interpreting the results
- The properties of the least squares estimates of an econometric model
- Inference and prediction in the Simple Linear Regression Model
- Interval estimation and hypothesis testing
- Evaluating the Simple Linear Regression Model

4. The General Linear Regression Model (Chapters 6, 7, 8, and 18)

- The econometric model with more than one independent variable
- The least squares principle
- Estimating the GLRM and interpreting the results
- Inference and prediction in the GLRM
- Single and joint hypothesis tests of the parameters of the econometric model
- Model specification issues
- Collinear variables
- The use of non-sample information in the GLRM

5. Non-linear effects in Regression models (Chapter 9)

- Binary variables
- Interactions between binary variables
- Functional form

6. Panel Data and Instrumental Variable Methods (Chapters 10 and 12)

- Estimating regression models with panel data
- Instrumental Variable estimation

7. Topics in Time Series Econometrics (Chapter 16) (if possible)

- Stationary time series
- Spurious regression
- Tests for stationarity
- Cointegration

NOTE: I reserve the right to add or subtract topics as the course develops. Not all topics will be covered in the same detail. Time constraints may cause some topics to be omitted. Unless otherwise notified, students are responsible for all the topics noted in the lecture outline.

Course Assessment

The final course grade will be determined based on student performance in online homework assignments through MyEconLab, two in-class mid-semester exams, and the course final. The dates of the mid-semester exams may be changed during the course based on our progress, but a rough idea is provided below. The online assignments will be assigned after the Thursday class and will be due by Monday evening.

Assessment	**Weight**
MyEconLab assignments and empirical projects	20%
Midterm 1	20%
Midterm 2	20%
Final Exam	40%

ALL exams are cumulative. If you do not attend an exam, you will receive a zero grade for that exam. Students who cannot attend an exam can, under certain circumstances, may make alternative arrangements if they provide me with a note from the Dean's office. I do not give extra-credit assignments.

Please also note that students need a C or above to fulfill major requirements.

Finally, I regard academic dishonesty as a very serious offence. Any student caught cheating will receive an F for this course and will be reported to the appropriate officer of the student's college. There will be no warnings. The following are some of the actions which I regard as academic misconduct:

1. Taking unauthorized materials into an examination.
2. Submitting work for assessment knowing it to be the work of another person.
3. Improperly obtaining prior knowledge of an examination paper and using that knowledge in the examination.
4. Failing to acknowledge the source of material in an assignment.

Grade Policy

The following table indicates what scores are necessary for each particular grade:

Grade	Range of Scores
A	>80
B+	74-80
B	68-74
C+	60-68
D	55-60
F	<50

Final Comments

1. Students are expected to attend all classes. If you expect to miss more than one or two classes because of illness or a family emergency, please use the University absence reporting website https://sims.rutgers.edu/ssra/ to indicate the date and reason for your absence. An email is automatically sent to me.
2. The best way to learn is by doing. I recommend attempting as many exercises at the end of each chapter of the text as you can.
3. I will miss class Tuesday, March 20th and Thursday, March 22nd. We will make up these classes or I will have guest lecturers I will provide more details closer to the dates.