

ECON 122 – INTRODUCTION TO ECONOMETRICS

Georgetown University
Department of Economics
Summer 2018 (Jul 9 – Aug 10)

Syllabus

Instructor

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Office hours: TBA

Lectures

MTWR, 3:15pm–5:15pm, ICC 117.

Recitations

TBA
Wed 7:00pm–9:00pm, St. Marys G40
Office hours: TBA

Goal

This course will introduce students to the analysis of linear models and certain types of nonlinear models of common use in economics. Though much of the course will be devoted to derivation of econometric theory results, applications to particular problems in the analysis of economic data will also be discussed. The first few lectures will review the pertinent material from Economics Statistics (ECON 121). Students should be comfortable with the basic concepts of probability theory and statistical inference, and, more generally, with mathematical derivations.

References

The textbook for this course is:

Stock, J.H., and Watson, M.W. (2015), *Introduction to Econometrics* (updated 3rd ed.), Pearson.

Suggestions for further reading will be provided in class.

For Stata, a good reference is:

Baum, C.F. (2006), *An Introduction to Modern Econometrics Using Stata*, Stata Press.

Useful materials can also be found at the website of the UCLA Institute for Digital Research and Education (<http://www.ats.ucla.edu/stat/stata/>).

Grades

Homework (15%)
Midterm (40%) – Tuesday, July 24th (tentative)
Final (45%) – Thursday, August 9th

Homework

Problem sets are an integral part of this course and spending a significant amount of time each week working on them is essential to learning the material covered. Collaboration on homework is encouraged, but students need to hand in their own solution.

Stata assignments: Some of the homework assignments involve statistical analysis of datasets. The required software for these assignments is Stata, which is available for free to all GU students. To download Stata 14, the most recent version, go to <https://georgetown.onthehub.com/WebStore/Welcome.aspx>, click on Enter Software Webstore, choose Stats & STEMS, select Stata 14, choose your platform (Windows or Mac), and download. While the use of statistical or numerical software for empirical work is very important, it is not the main focus of this course and you are expected to acquire the necessary skills through self-study of manuals or on-line tutorials.

Exams

There will be a midterm exam and a final exam. All exams are closed-book exams and all you need to bring is pen or pencil and a basic calculator.

There is NO make-up exam for the midterm. If you are ill or if a serious accident in the family causes you to miss the midterm exam, then I will disregard that exam and put a weight of 85% on the final exam when I calculate your grade. In every case, you will need to document your reason for missing the exam: a note from your physician or a phone call or email from your Dean will be adequate documentation. Except in extreme emergency cases, this documentation must be provided before the date of the exam.

There is NO make-up exam for the final. If for any valid reasons, you cannot take the final exam on the scheduled date, then you must take it before the scheduled date. Your valid reasons must be confirmed by your Dean through a phone call or email.

The following circumstances are not acceptable reasons to miss a midterm or take an early final exam: having a paper due on the exam date, having a second exam right after or before this exam, feeling that you could benefit from a little extra study time, oversleeping, not getting enough sleep, or having made plans to travel on the day of the exam.

Honor Code: The Georgetown Honor Code is in force for this course: “Students found in violation of the Honor System are subject to academic sanctions that include, but are not limited to, failure of a course, suspension, dismissal and revocation of degrees conferred.”

See <http://scs.georgetown.edu/academic-affairs/honor-code/>.

Course outline

I. Introduction and Review

- Economic questions and data (S&W Chapter 1)
- Review of probability and statistics (S&W Chapters 2 and 3)

II. Fundamentals of Regression Analysis

- Simple linear regression - Estimation (S&W Chapter 4)
- Simple linear regression - Inference (S&W Chapter 5)
- Multivariate linear regression (S&W Chapters 6 and 7)
- Nonlinear regression functions (S&W Chapter 8)
- Assessing regression results (S&W Chapter 9)

III. Further Topics in Regression Analysis

- Regression with panel data (S&W Chapter 10)
- Regression with a binary outcome (S&W Chapter 11)
- Instrumental variables regression (S&W Chapter 12)
- Experiments and quasi-experiments (S&W Chapter 13)

IV. Regression Analysis of Economic Time Series Data

- Time-series regression and forecasting (S&W Chapter 14)