Introduction to Econometrics

Instructor: Zachary Gochenour

ECON 345 - Fall 2013

Course Meeting Times

W   7:20-10:00pm   Robinson B 228

Office Hours:

By appointment. You can contact me at zgochen2@gmu.edu. My website can be found at
http://zacgochenour.com

Course Description

The course provides a survey of *econometrics*, a field which lies at the intersection of statistics, economics, and computer science. Essentially, it uses computers to apply statistics to study economics. The primary goal of this course is to help you become an intelligent consumer of statistics and its application to economics.

Prerequisites

ECON 306 (Intermediate Microeconomics) or equivalent. Also, you *must* have mastery of basic statistics to succeed in this class. There will be a brief review, but if you are totally unfamiliar with statistics it may be too brief.

Texts

The following books are required and available at the GMU bookstore and from online sellers:

- Angrist and Pishke, *Mostly Harmless Econometrics* ISBN-10: **0691120358**
- Wooldridge, *Introductory Econometrics* ISBN-10: **1111531048**

Additional readings will be assigned, links are provided on the syllabus.

Software

You must purchase *Stata* for this class, since I will assign a number of applications using Stata this semester. I will discuss Stata programming in class and will provide all assignment data in Stata format, so owning the software will make your life much easier.

For the purposes of this class, the six-month license for "small" Stata will be sufficient ($35). If you plan to use econometrics again after this semester, for instance those considering graduate school in economics, I recommend the Stata 13 perpetual license.

http://www.stata.com/order/new/edu/gradplans/campus-gradplan/

Grading

The weights for determining the final grade are as follows:

> 30% Final (cumulative)
> 30% Mid-term
> 20% Paper
> 15% Assignments
> 5% Media Project

This class is primarily lecture format, but I encourage students to ask questions about the lectures and readings. Attendance in class is strongly recommended, as any topic I cover in class could appear on the mid-term or final exam. There is no formal grade for participation, but if you are one of the students who (in my judgment) contributes most to class discussion, your grade will be improved by one step (e.g. from a B- to a B).

Exams

There will be a mid-term (closed-book) and a final (open-book, cumulative).

Paper Replication

You must find an econometric paper published in an academic journal and see if you can replicate their findings by using their data. Many authors make their data freely available online. I will give further details on this project early in the semester, including some suggested papers for you to try to replicate.

Assignments

There will be five problem sets. You can do some or all of them, but only the highest three grades will count for your final grade. I recommend you complete all the assignments, which will make you better prepared for the exams.

Media Project

The news media very often rely on econometric analyses in stories, and they usually do a poor job in interpreting the underlying research. At some point in the semester, find a news story that relies on some econometric research. Track down the original research/study and spend 5 minutes in class discussing whether the writer correctly interpreted the original research.

(Tentative) Schedule

Please come prepared to discuss the readings listed below each class date below:

 Week 1: What is Econometrics? That's kind of like statistics, right?

Section 1: Econometric Theory

 Week 2-3: Review of Probability and Statistics

  Mostly Harmless Econometrics, Section 1 and 2

  Wooldridge, Appendices A, B, and C

  Assignment 1 Due (Week 3)

 Week 4-5: Bivariate Regression

  Wooldridge, Ch. 1-2

  MHE, Sections 3.1 (through 3.1.3), 3.2 (through 3.2.2), and 3.4.3

 Week 6: Multiple Regression

  Wooldridge, Ch. 3-4

  MHE, Section 3.1.4

  Assignment 2 Due

Week 7: Non-linear Regression

Wooldridge, Ch. 6

MHE, Section 3.3

Week 8: MIDTERM

Section 2: Econometric Practice

Week 9: Regression applications

Henderson and Gochenour, "War and Presidential Greatness"

http://mason.gmu.edu/~zgochen2/pdf/presidential.pdf

Klick and Stratmann, "Diabetes Treatments and Moral Hazard"

https://www.law.upenn.edu/fac/jklick/50JLE519.pdf

Makowsky and Stratmann, "Political Economy at Any Speed"

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=961967

Week 10: Panel Data

Wooldridge, Ch. 13.1

MHE, Section 5.1

Assignment 3 Due

Week 11: Dummy Variables

Wooldridge, Ch. 7

Week 12: Difference-in-Difference

Wooldridge, Ch. 13.2

MHE, Section 5.2

Assignment 4 Due

Week 13: Instrumental Variables

Wooldridge, Ch. 15

MHE, Sections 4.1 and 4.2 (through 4.2.1), Section 4.6.1

J. Angrist and A. Krueger, "Does Compulsory School Attendance Affect Schooling and Earnings?," http://www.stanford.edu/~pista/angrist.pdf

Week 14: Inference Problems

Wooldridge, Ch. 8

MHE, Section 3.4.1

Assignment 5 Due

Week 15: Paper presentations and review

Wooldridge, Ch. 19

FINAL EXAM

Academic Integrity

George Mason University is an honor code institution, which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are all prohibited. All violations of the Honor Code will be reported to the Honor Committee. See http://www.gmu.edu/academics/catalog/9798/honorcod.html or more detailed information.

Office of Disability Services

If you are a student with a disability and you need academic accommodations, please let me know and contact the Office of Disability Services (http://ods.gmu.edu) at 703-993-2474. All academic accommodations must be arranged through that office.

Enrollment

Students are responsible for verifying their enrollment in this class. Schedule adjustments should be made by the deadlines published in the Schedule of Classes. (Deadlines each semester are published in the Schedule of Classes available from the Registrar's Website registrar.gmu.edu.)