

ECON 637  
Econometrics I  
Spring 2013  
Department of Economics  
George Mason University

Thomas Stratmann  
Office: Carow Hall  
Phone: 993-2317  
Email: tstratma@gmu.edu  
Classes: Tuesday, 7:20 p.m. - 10:00 p.m., Innovation Hall 208

Economics 637 is the first course in the graduate-level econometrics sequence. The prerequisites for the course are basic knowledge of probability and statistics, and some matrix algebra.

**Textbooks and readings**

Required for this class is **Angrist, Joshua and Jörn-Steffen Pischke. 2009. *Mostly Harmless Econometrics***. Princeton: Princeton University Press. and **Jeffrey M. Wooldridge, *Introductory Econometrics, 4th edition, 2009***, Cengage Learning. Both books give a very good discussion of issues in modern econometrics. The Angrist/Pischke book focuses on causal inference and identification and the Wooldridge is good for developing intuition for the underlying theory.

Recommended is **William H. Greene, *Econometric Analysis, 7th edition, 2008*** Prentice Hall. The Greene book discusses estimators. This book is more technical and we will cover some chapters of this book in this class.

Not required, is Jeffrey Wooldridge's *Econometric Analysis of Cross Section and Panel Data*. It is a more advanced treatment of the analysis of micro data, quite useful, and I require this book in the applied micro-econometrics class I teach in the Fall.

Another useful book is Peter Kennedy's *A Guide to Econometrics (Fifth Edition)*. I found it to be very useful as a graduate student.

At the bottom of the syllabus I include some papers, most of which we will discuss in class.

**Homework assignments/Midterm/Final/Paper**

I will not accept late homework assignments.

Lecture notes are on <https://mymasonportal.gmu.edu>. Suggested answers to problem sets and reading assignments will be posted on this site.

The midterm exam will be held in March. This exam is a closed book exam. There will be no makeup midterm. If you miss the midterm with a valid excuse, its weight will be shifted to the final.

The final will be cumulative.

You are required to write a paper for this class. The paper can be short. State your hypothesis, and present results. Look at the AER, JPE, and QJE how results are presented (Tables, description of results). You will not be graded on whether you do find or do not find statistically significant results, but on clarity of exposition and the innovation of your paper relative to the existing literature on the topic of your choosing.

The problem sets will cover some theoretical material as well as computational exercises; they are an important part of the course. Some of the assignment in the problem sets have not been explicitly discussed in class. You may have to reach into your undergraduate knowledge of statistics to answer those questions. While you can work in a group work on the problem sets, I expect that you work on your own and do not turn in someone else's product.

At the beginning of some classes I plan to have a short quiz which may cover the previous class or the previous two classes. The quiz will take 10 minutes max. The quiz will require you to give roughly 5 to 10 short answers.

Be sure to check the class web page frequently.

Please familiarize yourself with the Honor Code, <http://oai.gmu.edu/honor-code/>. Suspected cases of academic dishonesty including plagiarism will be sent immediately to the Honor Committee.

### **Applied Computing**

This course will include applied computing, using Stata. You will learn how to use Stata and solve statistical problems by learning-by-doing. In either case, your work must be your own. Thus, please don't hand in someone else's work product.

I'll provide more information on computing assignments throughout the semester.

For the empirical work on the problem sets, we will be using the econometrics software Stata. Stata is available on in some computer labs around campus, including the Public Choice Center.

I recommend that you purchase STATA 12. This software is probably the most favored statistical package used by applied economists. This software is also installed on some computers at the Public Choice Center and Enterprise Hall, and you are welcome to use it there. But it is probably best for you to purchase the software. You will get information about the software and reduced prices for students (the so-called GradPlan) at <http://www.stata.com/order/new/edu/gradplans/gp-direct.html>. The license for STATA (small STATA) starts at \$22 for six months, but since you may work with larger data sets in this class than allowed for by the small STATA license, I would recommend you take the Stata/IC 12 (Stata for moderate-sized datasets) one-year license for \$98. If you think you have use for it more than one year, take the perpetual license for \$179.

I have no financial interest in what type of option you chose and whether you chose to purchase this software at all.

Not on the "required list" but very useful is Statistics with Stata (Updated for Version 10) by Lawrence C. Hamilton, \$72 (the bookstore may have it, but you can also purchase it from the Stata website). If you have it, it will make your life easier, but you can do OK in the class without purchasing this book.

**Grades:**

Midterm Exam	25%
Final Exam	35%
Problem Sets and Computer Assignments	15%
Quiz in class	5%
Paper – due on the day of the final	20%

**Final Exam:** Tuesday, 5/14, 7:30-10:15pm

**Course Outline**

We will cover the following topics. The two-variable regression model and basics of multiple regression analysis for cross section data including the mechanics of OLS, statistical properties of OLS, basic statistical inference, testing more complicated single restrictions, testing multiple hypotheses, reporting regression result, functional form, goodness of fit, adjusted R-square. We will also discuss dummy independent variables, dummy dependent variables, and specification errors. Other topics covered are maximum likelihood estimation, methods of moments, heteroskedasticity, serial correlation and time series regressions. We will also cover some aspects of simultaneous equation models, limited dependent variables, panel data, and instrumental variables.

We will also have one to three guest lecturers who will teach on subjects like event study methodology, matching estimators, and propensity score estimators. The first guest lecture will be on February 5, 2013. That lecture will be on event study methodology.

**Accommodation for Students with Disabilities**

If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Center (DRC) at 703-993-2474. All academic accommodations must be arranged through that office.

Reading list - we will discuss some of these papers in class. The papers we'll discuss will be posted on the class web site.

- Bertrand, Marianne and Sendhil Mullainathan, "Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination," *American Economic Review*, 94(4), 2004, 991-1013.
- Duggan, Mark., and Steven Levitt, "Winning Isn't Everything: Corruption in Sumo Wrestling," *American Economic Review*, 92(5), 2002, 1594-1605.
- Fisman, Ray and Edward Miguel, "Corruption, Norms and Legal Enforcement: Evidence from Diplomatic Parking Tickets," September 2007, *Journal of Political Economy*.
- Sacerdote, Bruce, "How Large Are the Effects from Changes in Family Environment? A Study of Korean American Adoptees," *Quarterly Journal of Economics*, 121(1), 2007, 119-157.
- Klick, Jonathan and Thomas Stratmann (Spring 2008). "Abortion Access and Risky Sex Among Teens: Parental Involvement Laws and Sexually Transmitted Diseases." *Journal of Law, Economics and Organization*.
- Makowsky, Michael and Thomas Stratmann (2008). "Political Economy at Any Speed: What Determines Traffic Citations?" *American Economic Review*.
- David Wilcox, "Social Security Benefits, Consumption Expenditures, and the Life Cycle Hypothesis," *Journal of Political Economy*, 97, April 1989, 288-304.
- Richard Thaler, "Anomalies: Weekend, Holiday, Turn of the Month, and Intraday Effects," *Journal of Economic Perspectives*, 1, Fall 1987, 169-78.
- Meyer, B., W.K. Viscusi, and D. Durbin (1995), "Worker' Compensation and Injury Duration: Evidence from a Natural Experiment," *American Economic Review*, Vol. 85, 322-40.
- Almond, D., K. Chay, D. Lee, "The Costs of Low Birth Weight," *Quarterly Journal of Economics*, 120, 2005, 1031-1084.
- Geronimus, A., and S. Korenman, "The Socioeconomic Consequences of Teen Childbearing Reconsidered," *Quarterly Journal of Economics*, 1992, 1187-1213.
- Ayres, Ian and Steven Levitt, "Measuring Positive Externalities from Unobserved Victim Precaution: An Empirical Analysis of Lojak," *Quarterly Journal of Economics*, 115(3), 2000, 755-789.
- Angrist, J.D., and W.N. Evans, "Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size," *American Economic Review*, 88(3), 1998, 450-477.