

GRADUATE ECONOMETRICS I

Course code: Econ 7160
Term: Fall 2011
Location: Tilton Hall 307
Time: MW 2–3:15PM
Website: <http://econ.tulane.edu/kfinlay/econ7160>
Credit hours: 3 graduate hours

Instructor: Prof. Keith Finlay
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Office hours: Office hours are by appointment only on M–F 10:45 a.m.–2 p.m.
You can make an appointment on Google Calendar at <http://goo.gl/JXpZp>.

TA: Zachary Flynn
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COURSE DESCRIPTION

This course focuses on the specification and estimation of the linear regression model. The course departs from the standard Gauss-Markov assumptions to include heteroskedasticity, serial correlation, and errors in variables. Advanced topics include generalized least squares, instrumental variables, nonlinear regression, and limited dependent variable models. Economic applications are discussed throughout the course.

PREREQUISITES

Students should be familiar with linear algebra, mathematical statistics, and partial differentiation.

COURSE OBJECTIVES

Students will learn how to specify and estimate linear regression models and test hypotheses about model parameters under different statistical assumptions and understand the small-sample and asymptotic theory underlying each method. Students will become proficient in programming econometric routines. Ultimately, a first-year econometrics sequence should give students the tools to learn and implement new estimators in their applied research.

COURSE OUTCOMES AND EVALUATION CRITERIA

Course objectives are measures via the course assignments which assess acquired substantive knowledge and analytical ability via written work. See below under “Coursework, Grades, and Grading Policies”.

TEXTBOOKS

The required texts for this course are:

- William H. Greene. 2012. *Econometric Analysis*, 7th ed. Prentice Hall. ISBN: 9780131395381. (Older versions are acceptable, but students are responsible for differences on problem sets.)

- A. Colin Cameron and Pravin K. Trivedi. 2009. *Microeconometrics using Stata*. Stata Press. ISBN: 9781597180481.

The required text for the Applied Econometrics course you will take in the spring is:

- Angrist, Joshua D. and Jörn-Steffen Pischke. 2009. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press. ISBN: 9780691120355.

In addition, you will likely find use for a more advanced text during your graduate career. I would recommend buying one or both of the following:

- Jeffrey M. Wooldridge. 2010. *Econometric Analysis of Cross Section and Panel Data*, 2nd ed. MIT Press. ISBN: 9780262232586.
- A. Colin Cameron and Pravin K. Trivedi. 2005. *Microeconometrics: Methods and Applications*. Cambridge University Press. ISBN: 9780521848053.

All other readings are available online, either through a link to an electronic journal or through library e-reserve. Links are on this syllabus.

COURSEWORK, GRADES, AND GRADING POLICIES

Final course grades will be based on the following breakdown:

- Midterm exam (40%)
- Final exam (50%)
- Peer assessment (10%)

You will receive problem sets on about a weekly basis, but you will not receive grades for these. I will return completed problem sets with feedback and the solutions.

Since much of the studying for this class will be performed in groups and not all members may contribute equally, I will ask students to rate their classmates at the end of the semester. Your peer evaluation score will be the average of your classmates rating of your contributions. Bear in mind that you will be doing yourself (and other members of your group) a disservice if your rating of your contribution and/or the contribution of other group members is inaccurate. These evaluations are confidential and your ratings should not be shared with your group members. I reserve the right to discard valuations that are suspect.

EXAMS

The exams may cover any material from the assigned readings in the text, as well as any additional material that I cover in lecture. Students will be excused from the midterm exam only for valid medical or family emergencies. These excuses must be identified before the midterm and students must produce signed evidence verifying the reason why they cannot attend. If it is missed for a valid reason, weight will be reassigned from the other exams; otherwise, zero credit will be given.

The midterm exam is scheduled for Wednesday, October 19. The final exam is scheduled for Friday, December 16, from 1–5 p.m. The final exam will cover material from the entire semester. No makeup final exams will be allowed. If you will not be available during this time, please enroll in another course.

Students may ask that an exam be re-graded if they feel that a mistake has been made, by giving me a request in writing explaining their reasoning. The entire exam will be regraded and, after re-reading the exam, the grade may rise or fall. Of course, if a simple mistake has been made in adding up points, students should bring this to my attention and the grade will be changed.

CLASS SCHEDULE

I will be attending a conference the weekend of November 19. Class on Monday, November 21, will be canceled.

ACADEMIC HONESTY

All students must be familiar with and abide by Tulane's Unified Code of Graduate Student Academic Conduct, which is available online at <http://tulane.edu/provost/policies-and-publications.cfm>. I take matters of academic honesty very seriously. A student who commits academic dishonesty disrespects the hard work of his classmates. Any student found cheating, plagiarizing, or colluding during the course will be referred to the Graduate Council. If you fall behind in your coursework and even feel tempted to be dishonest, please see me first so that we find a way for you to turn in your work late (but with some penalty). That said, students are encouraged to study together and to collaborate on homework, although each student must write up her own homework.

STATA AND COMPUTER USE

The course will require use of the econometric package Stata, which can be found on all of the computers in Tilton 307. Stata Corp. has a list of excellent web-based tutorials for learning how to use Stata:

- <http://www.stata.com/links/resources1.html>

There are useful resources for working through the problems in the texts in Stata at the following sites:

- <http://www.ats.ucla.edu/stat/stata/examples/greene/default.htm>
- <http://fmwww.bc.edu/gstat/examples/wooldridge/wooldridge.html>

SCHEDULE AND TOPICS

- Foundation of probability and statistics (Goldberger, 1991, ch. 1–12)
 - Probability distributions
 - Expectations
 - Asymptotic distribution theory
 - Sampling
 - Parameter estimation
 - Hypothesis testing
- Ordinary Least Squares (Greene, 2012, ch. 2–3)
- Statistical properties of OLS, Gauss-Markov Theorem (Greene, 2012, ch. 4)
- Hypothesis testing and confidence intervals in linear regression models (Greene, 2012, ch. 5)
- Deviations from Gauss-Markov (Greene, 2012, ch. 9)
 - Non-iid errors
 - Measurement error
 - Omitted variables and misspecification
 - Variance estimation
 - Generalized Least Squares
- Instrumental variables regression (Greene, 2012, ch. 8)
- Simultaneous equation models (Greene, 2012, ch. 10)
- Linear panel data models (Greene, 2012, ch. 11)

ARTICLES AND BOOKS ON THE SYLLABUS

Goldberger, Arthur S. 1991. *A Course in Econometrics*. Harvard University Press.

Greene, William H. 2012. *Econometric Analysis*. Prentice Hall, 7th edition.