

**INTRODUCTION TO ECONOMETRICS  
SYLLABUS**

Course code: Econ 3230  
Term: Spring 2015  
Location: Tilton 301  
Time: TuTh 11:00 A.M. –12:15 P.M.  
Website: <http://econ.tulane.edu/kfinlay/econ3230>  
Credit: 4 undergraduate credit hours

Instructor: Prof. Keith Finlay  
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Office hours: Office hours are by appointment only, but appointments are available almost every weekday. You can make an appointment online: <http://kfinlay.ycb.me>.

**COURSE DESCRIPTION**

The course covers statistical tools commonly used to gauge economic relationships and how to apply those techniques to the logic and practice of public policy analysis. We consider basic research, measurement, design, and data collection issues. We develop specific techniques for analyzing multivariate data that are “less than perfect”. We will discuss economic applications and analyze economic data.

The specific topics of the course include: basic probability and statistics, univariate and multivariate regression, ordinary least squares, inference and hypothesis testing, dummy variables, and heteroskedasticity.

**PREREQUISITES**

The prerequisites for this course are introductory microeconomics, high school-level algebra and geometry, and some college-level mathematical statistics.

**COURSE OBJECTIVES**

Our objective will be to build understanding of estimation and inference in several popular econometric models. Students will learn some of the statistical tools commonly used to gauge economic relationships and how to apply those techniques to the logic and practice of public policy analysis.

**PROGRAM OUTCOMES**

This course contributes to the outcomes of the economics major by teaching students how to use statistical tools to analyze economic data and test economic hypotheses. It also contributes by teaching students how to use statistical programming tools to carry those statistical techniques.

## LEARNING OUTCOMES

Our objective will be to build understanding of estimation and inference in several popular econometric models. Students will learn some of the statistical tools commonly used to gauge economic relationships and how to apply those techniques to the logic and practice of public policy analysis. Students will gain the knowledge to use and correctly interpret the output of a statistical software package.

## EVALUATION CRITERIA

Course objectives are measured through the course assignments that assess acquired substantive knowledge and analytical ability via written work. See below under **COURSE ASSIGNMENTS AND GRADES** and **EXAMS**.

## TEXT AND READING MATERIALS

The required textbook for this course is

Wooldridge, Jeffrey M. 2005. *Introductory Econometrics: A Modern Approach*. Cincinnati, OH: South-Western College Publishers.

In addition to the textbook, there may be other readings, all of which will be available through the course website. It is your responsibility to keep track of the schedule of readings, which will be updated throughout the semester. The degree to which a student needs to be familiar with the details of a paper will be clear from the emphasis given to the paper in lecture.

## COURSE ASSIGNMENTS AND GRADES

Final course grades will be based on the following breakdown:

- Problem sets (3 [of 5]  $\times$  4%)
- Quizzes (6 [of 10]  $\times$  3%)
- Midterm exam (30%)
- Final exam (40%)

There will be five problem sets, and you will receive credit for the three highest grades. You are required to hand in written or typed solutions to the problem sets. Students are permitted and encouraged to work together on problem sets. But because the material on problem sets will be similar to that on the exams, it is critical that you understand the material independently. Problem set solutions will be distributed when the problem sets are handed in, so no late work will be accepted. No extra credit will be offered.

There will be 10 unannounced quizzes. I will drop the lowest four quiz scores.

## EXAMS

The exams may cover any material from the course: assigned readings in the text, other assigned readings, and any additional material that I cover in lecture. There will be one midterm exam on **Thursday, February 26**. 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 final exam; otherwise, zero credit will be given.

The final exam is scheduled for **Tuesday, May 5 from 9:00 A.M. –noon**. 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 regraded 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. Regrading will only be available for students who take their exams in pen (as opposed to pencil). 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.

#### **SUPPLEMENTARY RESEARCH PAPER FOR HONORS CREDIT**

Students who wish to take this course for honors credit must complete a supplementary research paper. The paper is due the last day of class. Late papers may be read, but will receive a grade of zero. Your 15–20 page research paper should include:

- quantitative analysis of a research question on some kind of econometric issue,
- a hypothesis of what economists would think about this issue,
- an analysis using an econometric method we have covered in class,
- this should lead you to a short literature review, and
- an answer to your research question; explain how the quantitative data answers the question you posed.

A proposal for your paper topic is due the day of the midterm exam. To make sure that you have started on the right track, this proposal should include:

- your research question,
- any necessary background so that I can understand your research question; if you are writing about a policy or program, be sure to explain what it is, and
- some information on how you plan to quantify things by collecting data (finding something interesting to quantify is a substantial part of what makes a good paper; if you are unsure about what to do, or have an idea but are unsure how to quantify it, come see me).

The research paper will be worth 20% of the final grade, with the remaining 80% allocated according to the relative breakdown given in the section **COURSE ASSIGNMENTS AND GRADES**.

#### **CLASS SCHEDULE**

I will be traveling for work on Thursday, April 9, so class on this day will be canceled.

#### **ACADEMIC HONESTY**

All students must be familiar with and abide by Tulane's Code of Academic Conduct, which is available online at <http://tulane.edu/college/code.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 Associate Dean of Newcomb-Tulane College. 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.

**SCHEDULE OF TOPICS AND READINGS**

This is a list of broad topics and the individual readings we will cover. Links to the readings can be found at the end of the syllabus.

- **What is econometrics?** (1 lectures)
  - Wooldridge (2005, Chapter 1)
- **Basic mathematics tools** (1 lectures)
  - Wooldridge (2005, Appendix A)
- **Fundamentals of probability** (3 lectures)
  - Wooldridge (2005, Appendix B)
- **Fundamentals of mathematical statistics** (3 lectures)
  - Wooldridge (2005, Appendix C)
- **Simple regression model** (3 lectures)
  - Wooldridge (2005, Chapter 2)
- Midterm exam (Thursday, February 26)
- **Multiple regression model: estimation** (3 lectures)
  - Wooldridge (2005, Chapter 3)
- **Multiple regression model: inference** (3 lectures)
  - Wooldridge (2005, Chapter 4)
- **Multiple regression model: asymptotics** (3 lectures)
  - Wooldridge (2005, Chapter 5)
- **Multiple regression model: further issues** (3 lectures)
  - Wooldridge (2005, Chapter 6)
- **Multiple regression with binary predictors** (3 lectures)
  - Wooldridge (2005, Chapter 7)
- **Heteroskedasticity** (3 lectures)
  - Wooldridge (2005, Chapter 8)
- **Specification and data issues** (3 lectures)
  - Wooldridge (2005, Chapter 9)
- Final exam (Tuesday, May 5 from 9:00 A.M. –noon)

**ARTICLES AND BOOKS ON THE SYLLABUS**

Wooldridge, Jeffrey M. 2005. *Introductory Econometrics: A Modern Approach*. Cincinnati, OH: South-Western College Publishers.