

# Economics 21000: Econometrics A

Department of Economics  
University of Chicago  
Spring 2006

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All course materials will be posted on the class Web page at [chalk.uchicago.edu](http://chalk.uchicago.edu).

## 1 Class times and office hours

**Lectures:** 10:30 to 11:50 a.m. Tuesdays and Thursdays in Rosenwald 011.

**Problem sessions:** 5 to 6 p.m. Thursdays in Rosenwald 011.

**Sam's office hours:** 5 p.m. Wednesdays on A-level of Regenstein Library, or by appointment.

**Sandra's office hours:** 6 p.m. Thursdays in Rosenwald 011, or by appointment.

## 2 Course description

This course is an introduction to empirical methods in economics. We will discuss how economists combine statistical tools and economic theory to answer questions about the world.

**Example:** People who serve in the military receive a great deal of training. Does this training allow veterans to earn higher wages than non-veterans? Can we answer the question simply by comparing the wages of some randomly chosen veterans and non-veterans?

**Objectives:** By the end of the course, you should be able to perform basic empirical analyses and critically evaluate and explain basic econometric work done by other people.

**Prerequisites:** Economics 201 and 202 and Statistics 234.

## 3 Grading and policies

**Final exam** – 40%. 10 a.m. to noon June 2 or 10:30 a.m. to 12:30 p.m. June 6. Graduating students must take the June 2 exam. Others may choose either exam. Closed book/notes.

**Quizzes** – 15%. The first 15 minutes of class April 18, May 9 and May 23. Closed book/notes. I will drop your lowest grade; no makeups.

**Paper** – 15%. A five-page critical summary of an article from the literature, due in class May 30. Details will be discussed mid-quarter. You must write the paper alone.

**Problem sets** – 30%. About seven, due most Fridays at 4 p.m. in Sandra's mail folder on the second floor of Rosenwald. You will need to use the software program Stata, which is available in the public computer labs. You may work with classmates but must write up your own answers.

Except in case of documented medical or family emergencies, you must have prior permission to turn in late work. If you require accommodations for a disability, please see me as soon as possible.

**Any student who cheats on an exam or engages in any other form of academic dishonesty will fail the course and be reported to the dean.**

## 4 Readings

Chapter numbers on the course outline below refer to the following required text:

- Wooldridge, Jeffrey M., 2005, *Introductory Econometrics: A Modern Approach*, third edition, Thomson South-Western. (The second edition, which is virtually identical, is no longer sold new but may be available used at low cost.)

You are responsible for material in Wooldridge only if we also cover it in class or on a problem set. If you find Wooldridge unhelpful, some other good introductory books are:

- Goldberger, Arthur S., 1998, *Introductory Econometrics*, Harvard University Press.
- Kennedy, Peter, 2003, *A Guide to Econometrics*, fifth edition, MIT Press (good for intuition).
- Stock, James H., and Mark W. Watson, 2002, *Introduction to Econometrics*, Addison Wesley.

The outline also lists journal articles, which are available on [www.jstor.org](http://www.jstor.org) or the journals' Web sites. They are required reading. You need not follow every technical detail. Rather, please read the introduction to find out what question the paper asks, then skim the rest to see how the paper uses data, statistical methods and economic theory to answer this question.

## 5 Course outline

1. Motivation and statistical background. Chapter 1 and Appendices B and C.
2. Simple regression. Chapter 2.
  - a. The mechanics of bivariate ordinary least squares.
  - b. Assumptions of the classical linear regression model. Unbiasedness. Inference.
3. Multiple regression.
  - a. Mechanics. Chapter 3 and Appendices D and E.
    - Fryer, Jr., Roland G., and Steven D. Levitt, 2004, "The Causes and Consequences of Distinctively Black Names," *Quarterly Journal of Economics* 119(3), 767-805.
  - b. Inference. Chapter 4.
    - Duflo, Esther, 2003, "Grandmothers and Granddaughters: Old-Age Pensions and Intra-household Allocation in South Africa," *World Bank Economic Review* 17(1), 1-25.
  - c. Logs, quadratics, categorical and dummy variables. Interpreting results. Chapters 6 and 7.
    - Krueger, Alan B., 1993, "How Computers Have Changed the Wage Structure: Evidence from Microdata, 1984-1989," *Quarterly Journal of Economics* 108(1), 33-60.
    - DiNardo, John E., and Jorn-Steffen Pischke, 1997, "The Returns to Computer Use Revisited: Have Pencils Changed the Wage Structure Too?" *Quarterly Journal of Economics* 112(1), 291-303.

4. Inference problems and time series issues.
  - a. Heteroskedasticity. Weighted least squares. Robust standard errors. Chapter 8.
  - b. Autocorrelation, random walks and time trends. Autoregressions. Chapters 10 and 12.
    - Yule, G. Udny, 1926, “Why Do We Sometimes Get Nonsense-Correlations Between Time-Series?” *Journal of the Royal Statistical Society* 89(1), 1-63. (*Please read Section I only.*)
5. Specification problems.
  - a. Irrelevant variables and omitted variables. Sections 5.1 and 9.2.
  - b. Solving specification problems with first differences. Chapter 13.
    - Levitt, Steven D., 1994, “Using Repeat Challengers to Estimate the Effect of Campaign Spending on Election Outcomes in the U.S. House,” *Journal of Political Economy* 102(4), 777-798.
  - c. Solving specification problems with instrumental variables. Chapter 15.
    - Angrist, Joshua D., 1990, “Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records,” *American Economic Review* 80(3), 313-336.
  - d. Measurement error. Sections 9.3 and 15.4.
    - Bound, John, and Gary Solon, 1999, “Double trouble: on the value of twins-based estimation of the return to schooling,” *Economics of Education Review* 18, 169-182.
6. Simultaneous equations. Chapter 16.
  - a. Simultaneity bias in the supply and demand model.
  - b. Estimating supply and demand equations with instrumental variables.
    - Graddy, Kathryn, 1995, “Testing for imperfect competition at the Fulton fish market,” *RAND Journal of Economics* 26(1), 75-92.
    - Nelson, Philip, John Siegfried, and John Howell, 1992, “A Simultaneous Equations Model of Coffee Brand Pricing and Advertising,” *Review of Economics and Statistics* 74(1), 54-63.
    - Hoxby, Caroline M., 2000, “Does Competition Among Public Schools Benefit Students and Taxpayers?,” *American Economic Review* 90(5), 1209-1238.