Economics 570
Applied Econometric Analysis
Fall 2017

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Midterm Exams (20% each): September 28 and November 16
Problem Sets (10% total)
Research Paper (15%)
Final Exam (35%): December 12 at 8 AM

Required Textbook:
Introductory Econometrics: A Modern Approach (Wooldridge, 6th edition)

Prerequisites:
The pre-requisites are Econ 400 (Statistics), Econ 410 and 420 (Intermediate Microeconomics and Macroeconomics), and a semester of differential calculus.

Course description:
Econometrics is the application of statistical methods and economic theory to the problem of identifying, estimating, and testing economic models. This course covers concepts and methods used in empirical economic research. Students will learn how to conduct and how to critique empirical studies in economics. Accordingly, the emphasis of the course is on various empirical applications. Topics include classical single-equation regression model, multiple regression models, discrete and categorical dependent variables, instrumental variables and longitudinal data. In the lectures, there will be many empirical examples using a wide variety of data sets.

Problem sets:
All problem sets (five or six over the course of the semester) will involve empirical analysis using data sets in STATA 14 format that we will provide. STATA is available in computer labs on campus, a student edition can be purchased, and it is available as part of the Citrix virtual computer lab that you can access with your onyen and password. Problem sets are independent work – not a group project. However, it is okay to ask a fellow student about STATA commands, for instance. You should hand in your

assignments at the beginning of class the day they are due (typically a week after distribution). Late problem sets (but before answers are posted) will be marked down by 50%.

Research paper:
For the empirical project, you should use data to analyze an economics related research question using econometric methods from this course. The paper should be approximately 15 pages and explain the research question, data, estimation strategy, and results. You should be able to write your research question as "the effect of A on B". The method used must be more sophisticated than simple OLS or at least involve the use of specification tests that you will learn over the course of the semester. Chapter 19 in the book provides an outline for carrying out an empirical project and examples of data sources. Wooldridge also has many of the data sets used in the book in STATA format that you are welcome to use. However, you are free to find and use your own data.

Course outline:

1. Review of basic statistics (Appendix A-C)
2. Types of data (Ch. 1)
3. Bivariate linear regression (Ch. 2)
4. Multiple regression (Ch.'s 3 and 4)
5. Functional form and dummy independent variables (Ch. 6.1-6.3 and Ch. 7.1-7.4)
6. Model specification tests and corrections (Ch. 8.1-8.4 [not 8-2a but add in-class notes on Goldfeld-Quandt test and associated GLS estimator] and Ch. 12.1a, 12.1b, 12.2a, 12.2b)
7. Instrumental variables for linear models (Ch. 15.1-15.5 and Ch. 16.1-16.4)
8. Longitudinal data methods (Ch.'s 13 and 14)
9. Discrete dependent variable models (Ch. 7.5-7.7 and Ch. 17.1-17.3 plus lecture notes for multinomial logit and conditional logit)
10. Advanced topics (TBD)

Electronic devices:
All electronic devices must be turned off during class. This includes cell phones and laptop computers. You should plan on taking notes "by hand." The STATA do files and log files of results from the in-class examples will be posted to the Sakai site.