ECON 772 Course Syllabus

Course Title  Econometrics

Meetings  Day, Time, Classroom

Instructor  Dr. Mark Nichols, Associate Professor
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Office Hours  Tuesdays and Thursdays 12:00-1:00; and by
              appointment; AB 319B

Required Text  Basic Econometrics (4th edition), Damodar Gujarati

Grading  Stata Projects  30%
          Exam 1        15%
          Exam 2        15%
          Exam 3        15%
          Term Project  25%

Grading Scale  Percent of all points  Grade
               92.5-100        A
               90.5-92.49     A-
               88.5-90.49     B+
               82.5-88.49     B
               80.5-82.49     B-
               78.5-80.49     C+
               72.5-78.49     C
               70.5-72.49     C-
               68.5-70.49     D+
               62.5-68.49     D
               58.5-62.49     D-
               0-58.49         F

Students with Disabilities

I encourage any student needing to request accommodations for a specific disability to please meet with me at your earliest convenience to ensure timely and appropriate accommodations.
**Course Policies**

The exam dates scheduled above are tentative and subject to change. However, every attempt will be made to hold the exams on the days indicated. You are responsible for taking all exams and turning in all assignments. Make-up exams will not be given unless I am notified prior to the exam, in which case an exam may be rescheduled. Late assignments will not be accepted.

Students are bound by the Academic Honor System. This system is based on the premise that each student has the responsibility a) to uphold the highest standards of academic integrity in the individual's own work, b) to refuse to tolerate violations of academic integrity in the University community, and c) to foster a high sense of integrity and social responsibility on the part of the University community. While problems of academic dishonesty rarely come up, feel free to bring them to my attention, and I will work with you to address them appropriately.

**Course Description**

This course is designed to introduce graduate students to the principle tool of empirical inquiry in the social sciences—linear regression analysis. The overwhelming majority of studies which test hypotheses, make forecasts, or examine public policy impacts use linear regression analysis. The focus of this course is applying econometric techniques, not derivation. This involves understanding model development, specification, sensitivity and specification testing, data handling, hypothesis formation and testing, model interpretation, use, and description. However, students are expected to have familiarity with statistical methods and theory, and differential calculus. Knowledge of matrix algebra is beneficial, but not necessary.

**Course Objectives**

(a) To provide you with many useful examples of applied econometrics and to develop your problem solving and analytical skills. This will have direct benefits in preparing you for other courses and for the job market, particularly where data analysis is required.

(b) To improve your ability to search and obtain data crucial to economic analysts. This will develop your awareness of economic resources available.

(c) To master basic econometric concepts and apply these concepts to economic research problems.

(d) To provide you with the tools necessary to solve "real world" problems (e.g., estimate demand, forecast sales, determine the impact of an advertising campaign) that are frequently encountered by firms, governments, and policy makers.

(e) To improve your ability to communicate your understanding of econometrics.
**Term Project**

The term project should be 10 to 15 pages long and involve applied econometric analysis. Working on your existing thesis topic, if known, is strongly encouraged. Alternatively, this project can serve as the basis for your thesis. The project should be done in two stages. By the 7th week, you will be required to turn in a draft presenting your econometric model, data requirements, and anticipated results. Your final paper, turned in at the end of the semester, should present your econometric results and form the base of a paper to be presented at professional meetings.

**Course Outline**

Week 1. Introduction, Ordinary Least Squares  
- Gujarati, *Basic Econometrics*, pp. 1-57  
- Introduction to Stata

Week 2  Least Squares Estimation and Multiple Regression  
- Running a regression with Stata

Week 3  Assumptions of the Model: A Closer Look at the Error Terms  
- Examining the residuals with Stata

Week 4  Hypothesis Testing and Properties of Estimators  
- Gujarati, *Basic Econometrics*, pp 119-151  
- Monte Carlo Simulation

Week 5  Dummy Variables  

Week 6  Multicollinearity  
- Gujarati, *Basic Econometrics*, pp 341-379  
- Examining multicollinearity with Stata

Week 7  Heteroskedasticity  
- Testing for heteroskedasticity with Stata
**Course Outline, continued**

Week 8  
**Autocorrelation and Trend**  
- Gujarati, *Basic Econometrics*, pp 441-490  
- Estimating a regression with autocorrelation using Stata

Week 9  
**Model Specification and Diagnostic Testing**  
- Gujarati, *Basic Econometrics*, pp 506-549  
- Using Stata to test for specification error

Weeks 10 & 11  
**Logit and Probit Regression Models**  
- Gujarati, *Basic Econometrics*, pp. 580-625  

Week 12  
**Panel Data Regression Models**  

Weeks 13-15  
**Time Series Econometrics and Forecasting**  
- Gujarati, *Basic Econometrics*, pp 792-830; 835-865