

ECON 360 Econometrics
Purdue University
Fall 2012

Professor Kevin Mumford
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Office: RAWL 4026
Office Hour: Fri 4:00 - 5:00 pm

RAWL 2077
Tue & Thu
9:00 - 10:15 am

Course Description

This course provides an introduction to econometrics where you will learn the tools that will enable you to conduct empirical analysis using economic data. The course examines the statistical techniques used in testing economic theories, estimating causal effects, and making predictions. Emphasis is placed on estimating a single equation (e.g., a demand function) and the problems associated with such estimation. As part of the course, students will estimate equations using STATA, a statistical software package.

Many students have told me this was the most difficult course they have ever taken. You may have heard that this is a difficult course from other students. I want to emphasize that it is the *challenging material* that makes this course difficult, not the professor. I will put great effort into helping you develop a solid understanding of econometrics. One reason many students find the course to be challenging is because econometrics is cumulative with each lesson building on comprehension of the material that came before. My advice is that you should read the textbook, attend class, take notes, and keep up on your homework. This isn't the kind of course that you can let slide until just before an exam.

Required Textbook

Wooldridge, Jeffery M. (2000) *Introductory Econometrics: A Modern Approach*, Thomson South-Western.

Prerequisites

Students are expected to understand the material covered in a **probability course** like STAT 225 or STAT 250 as well as the material covered in a **statistics course** like MGMT 305, STAT 350, or STAT 511. Knowledge of basic calculus is also needed. If you have not yet taken a statistics course, it would be better to wait to take econometrics. Taking econometrics without having taken statistics puts you at a real disadvantage. The required background material in mathematics is reviewed in Appendix A of the textbook. The required background material in probability is reviewed in Appendix B of the textbook. The required background material in statistics is reviewed in Appendix C of the textbook. If you find that your understanding of math, probability, or statistics is not sufficient, read the appropriate appendix and work through the associated problems.

Computer Lab

Completing problem sets will require using statistical software. For this course, we will be using STATA which is available for your use in Krannert Computer Labs 1 and 2 (KRAN 7th floor) as well as in the Management and Economics Library. Throughout the course you will use STATA to complete a series of econometrics exercises designed to provide experience with various tests and estimation procedures. Although not required, you may purchase your own copy of STATA for use on a personal computer. Student pricing is available through the Krannert Computing Center.

Course Website

All material related to the course will be available on the course website in Katalyst (located on the web at: <https://webapps.krannert.purdue.edu/kap/>) You will need to log in with your Purdue username and password.

Problem Sets

You are encouraged to work on problem sets in small groups, but each student must turn in his or her own individual copy. To receive credit, assignments must be handed in by the deadline. Rather than allowing exceptions to this rule, each student's lowest problem set score will be excluded in calculating the average problem set score used to compute the final grade. This provides a method for handling a late or missing assignment due to illness, a misunderstanding, emergencies, or other special circumstances.

Exams

There will be three exams: two midterms and a final. The first midterm will be held during class on Thursday, **September 27** and the second midterm will be held during class on Thursday, **November 1** (please mark your calendars). Taking the exam early is allowed in some cases. However, no late or makeup exams will be allowed. The final exam will be held during exam week (December 10-15). The date and location will be known later in the semester. Please plan to remain on campus through all of exam week. I will post some old exams on the course website to help you know what to expect. During exams, you are not allowed to use the book, your notes, a cheat sheet, a calculator, or anything else. It's just you, your pencil, and the exam.

Grading

The final grade for this course will be based on:

- Problem Sets (35%)
- 1st Midterm Exam (in-class) (15%)
- 2nd Midterm Exam (in-class) (15%)
- Final Exam (35%)

The top 30 to 40 percent of the class will receive an A or A-; the next 30 to 40 percent of the class will receive a B+, B, or B-; the bottom 20-30 percent of the class will receive a C+ or lower. I assign D's and F's to students with very low scores and the course average grade is a B.

Emergency

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances.

Incomplete

A grade of incomplete is given only if all four of the following conditions are satisfied: (1) the student's course work is interrupted by unavoidable absence or other causes beyond the student's control, (2) the work was passing at the time it was interrupted, (3) completing the work does not require the student to repeat the course, and (4) the Dean of Students gives a recommendation that the circumstances warrant a grade of incomplete.

Student Code of Honor

The purpose of the Purdue University academic community is to discover and disseminate truth. In order to achieve these goals, the university commits itself towards maintaining a culture of academic integrity and honesty. For this to be possible, self-discipline and a strong desire to benefit others must be present within each individual. Therefore, we students must follow the Regulations Governing Student Conduct of Purdue University out of a sense of mutual respect, rather than out of fear of the consequences of their violation.

Classroom Behavior

Disruptive behavior in class is not tolerated and is grounds for being asked to leave the class. This includes the use of cell phones in class. Remember to turn off your cell phone before class begins. Offensive or demeaning treatment of an individual where the treatment is based on race, color, religion, gender, national origin, or other protected status is not tolerated and is grounds for being asked to leave the class. Disruptive students will be referred to the Dean of Students Office for further action.

Course Outline

- Nature of Econometrics and Economic Data (Chapter 1)
- Simple Regression Model (Chapter 2)
- Multiple Regression Analysis (Chapter 3)
- OLS Inference (Chapter 4)
- OLS Asymptotics (Chapter 5)

MIDTERM EXAM 1 (Chapters 1-5) Thursday, September 27

- OLS Further Issues (Chapter 6)
- Binary Variables (Chapter 7)
- Heteroskedasticity (Chapter 8)
- Specification and Data Issues (Chapter 9)

MIDTERM EXAM 2 (Chapters 1-9) Thursday, November 1

- Advanced Topic: Basic Time Series Analysis (Chapters 10, 11, 12, & 18)
- Advanced Topic: Panel Data Methods (Chapters 13 & 14)
- Advanced Topic: Instrumental Variables Estimation (Chapter 15)

FINAL EXAM (Chapters 1-9 & Advanced Topics)