THE UNIVERSITY OF TENNESSEE KNOXVILLE

Economics 381: Introduction to Econometrics
Syllabus, Fall 2017

MEETING TIME   Tuesday and Thursday, 9:40–10:55, Haslam 113.

FACULTY
INFORMATION   Dr. Enda Patrick Hargaden
Stokely Management Center 702
Email: enda@utk.edu
Office Hours: Fri 9:30–11:30.

COURSE
DESCRIPTION   Economics 381 is a course in introductory econometrics, designed to provide students with the theoretical tools and practical experience necessary to do applied econometric research. These skills are in demand by employers: in 2014, LinkedIn listed Statistical Analysis and Data Mining as the "hottest skill". The skills are also necessary for graduate programs in many disciplines. Thus this course will serve students well long after graduation. Students are presumed to have a basic knowledge of probability and statistics.

This course has both theoretical and applied components. Students will be actively involved with computer exercises using the Stata econometrics program. Throughout the course you will use Stata to implement a series of econometrics exercises designed to provide experience working with the techniques discussed in class. In addition to these exercises, you will complete your own applied econometrics project as described below.

COURSE
OBJECTIVES   This course provides an introduction to probability, statistics, and econometrics from an economic perspective with emphasis on skills related to gathering, managing, processing, presenting, and interpreting economic data. Students will develop skills using statistical software for hands-on research projects. Students will be able to identify and address common econometric problems. Students will learn to communicate the results of applied econometric work in writing.

RULES OF THE
GAME   I always promote a welcoming environment in class. Please ask for help if you don't understand something: there are no stupid questions. However I have three rules:

1. Turn your phones and laptops off.
2. Do not interfere in your classmates' learning experience.
3. Know in advance that students often find econometrics challenging. Expect to have to work through crucial concepts, and do your best to be prepared for each lecture. Consistently doing the suggested study questions throughout the semester (i.e. not just the week before the exam) will help your final grade.

RESOURCES FOR THE COURSE

Textbook: Studenmund's "Using Econometrics, A Practical Guide". A copy will be held in the Course Reserves section of Hodges Library. The text is now in its seventh edition, but the sixth edition is also fine. I list suggested study questions from both the sixth and seventh editions.

Software: All students will need to purchase a license for Stata. You can purchase a six-month student version of Stata for $49 from stata.com, and this will suit the in-class tutorials we will have throughout the semester. If you need more permanent access to Stata, it is installed on the desktop machines in Hodges Library and is also available to a limited number of users on the Apps@UT system.

Additional Readings: I will sometimes provide additional reading materials as a complement to the topics covered in class, including selected readings from "Mostly Harmless Econometrics" by Angrist and Pischke. These readings will be available online. Similarly, links will be provided in class or on Canvas to the online help documentation for Stata. For students who want more than the Studenmund book, there are plenty of other textbooks on the subject. Two I recommend are "Introductory Econometrics" by Wooldridge and "Introduction to Econometrics" by Stock and Watson.

COURSE REQUIREMENTS

Suggested Study Questions (0%) — I include a list of suggested study questions from the textbook. I have chosen only a handful from each chapter so you can work through them in a reasonably short amount of time. Though they are not directly counted in your grade, completing them as we move through the semester will greatly help you prepare for exams. I strongly advise against avoiding these problems until a day or two before exams. They're included to help you identify parts of the course you have difficulty with early on, not the night before the exam!

Problem Sets (15%) — Problem sets will be assigned frequently throughout the semester. The problems serve primarily to provide students with experience using statistical software packages and to reinforce the concepts learned in class. The problems, due dates, and solutions will be posted to Canvas. Problem sets may be completed in groups of up to three students. If you successfully complete Problem Set 0, I will drop your lowest problem set grade when calculating final grades.

Research Paper (25%) — The capstone of the applied portion of the course is the research paper. You will need to gather and clean a (credible) dataset to use for an empirical analysis of your choosing. (Note: you must get prior approval from me if you plan to submit your paper as part of the requirements for another course.) You will formulate interesting hypotheses, use appropriate econometric techniques to investigate these hypotheses, and then formally write up your results. My goal is for everyone to have a polished paper that they can be proud of. To achieve this, the paper will evolve in three stages. First, you will submit a short two page proposal outlining your paper topic (5%). This proposal will cite at least two published academic papers that are related to your topic, identify a data source, and provide the mean and standard deviation of two

relevant variables from the data. Second, roughly two-thirds into the semester you will submit a draft paper with summary statistics of the data, a key regression equation of interest, estimation results, and diagnostic tests (5%). Third, you will produce a polished version of the final paper (15%), which is due on November 22. Final papers should not exceed ten double-spaced pages (excluding tables, figures, etc.) Details will be discussed frequently in class.

I have organized for the best paper to be awarded $100 and, much more importantly for resume purposes, official recognition from the Department of Economics as the recipient of the J. Fred Holly Scholarship for Outstanding Undergraduate Research.

Midterm exams (30%) — There will be two in-class midterm exams. Dates for midterms will be announced in class and posted to Canvas.

Final Exam (25%) — The final will cover all course materials from lectures, problem sets, and the text. The final exam will be held Tuesday, December 12th from 8:00–10:00.

Class Participation (5%) — Econometrics is a synthesis of economic theory, economic intuition, and statistics. Most find the study of econometrics rather challenging. As such, do not plan to attend class sporadically and/or fall behind in the readings and expect to do well through "cramming". For your benefit as well as my own, I will note attendance during the semester. Besides simply attending, you should come to class prepared to participate in discussion. Being prepared means having read the relevant chapter before we discuss it in class.

There will be no make-ups for missed exams. Students who miss an exam with an absence notification from the Dean of Students will have the weight from that exam shifted to the final. Students who miss an exam/deadline without a verified notification will be given a grade of zero. My policy on late assignments is that they cannot receive a score higher than the lowest score given to on-time submissions.

GRADING SCALE   I will use the following scale to assign final course grades: 92 to 100% is an A; 90 to 92% is an A-; 87 to 90% is a B+; 82 to 87% is a B; 80 to 82% is a B-; 77 to 80% is a C+; 70 to 77% is a C; 65 to 70% is a C-; 60 to 65% is a D+; 50 to 60% is a D; and less than 50% is an F. If necessary, I reserve the right to implement a curve to achieve a more reasonable distribution of grades; but this is unlikely so do not rely on a curve to save you.

HOW TO BE SUCCESSFUL IN THIS CLASS   The most successful students in the past tended to read the assigned materials in advance of lecture and thus come to class with a good overview of what was to be presented. The most successful students also reinforce the material by working through the suggested study questions each week. To signal you have read this part of the syllabus, you should email me a picture of a dinosaur during the first week of classes. Beyond that, if you do miss a class it is incumbent on you to get notes from a friend, and to come to office hours for help with any follow-up questions.

ACADEMIC
INTEGRITY

Each student should have read and signed the Honor statement regarding academic integrity available on the Hilltopics website. The punishment for violation of academic integrity is an F in the course.

STUDENTS WITH
DISABILITIES

Any student who feels he or she may need an accommodation based on the impact of a disability should contact the Office of Disability Services (ODS) at 865-974-6087 in 2227 Dunford Hall to document their eligibility for services. ODS will work with students and faculty to coordinate reasonable accommodations for students with documented disabilities.

SUGGESTED
STUDY QUESTIONS

		Suggested Questions	
Topic	Textbook Chapter	7th edition	6th edition
Introduction	Chapter 1	1, 4, 6	1, 7, 9
OLS	Chapter 2	1, 2, 3, 4, 7	1, 2, 4, 5, 13
OLS (continued)	Chapter 3	2, 5, 6	2, 8, 10
Classical Model	Chapter 4	1, 2, 3, 4	1, 2, 3, 5
Hypothesis Testing	Chapter 5	1, 2, 4, 6, 7	1, 2, 5, 9, 10
Specification	Chapter 6	1, 2, 3, 8	1, 2, 4, 15
Specification (continued)	Chapter 7	1, 2, 5, 7	1, 2, 6, 7
Multicollinearity	Chapter 8	1, 2, 5	1, 2, 8
Serial Correlation	Chapter 9	1, 2, 5	1, 2, 11
Heteroskedasticity	Chapter 10	1, 3, 5, 6	1, 3, 12, 13
Time Series	Chapter 12	1, 2, 5	1, 2, 9
Discrete outcomes	Chapter 13	1, 2	1, 2
Forecasting	Chapter 15	1, 5	1, 8
Panel Data	Chapter 16	1, 2, 3	1, 2, 3

COURSE OUTLINE   Below is a guideline of what we will cover in the course. **Dates are approximate.**

	Topic	Approximate Date	Reading
1	Introduction and OLS	August 24	Chapters 1-3*
2	The Classical Model	August 31	Chapter 4
3	Identification and Interpretation	September 7	Mostly Harmless*
	Review/Project and Midterm 1	September 12	
4	Hypothesis Testing	September 19	Chapter 5
5	Model Specification	September 28	Chapters 6-7
6	Multicollinearity	October 5	Chapter 8
7	Heteroskedasticity and autocorrelation	October 10	Chapters 9-10
	Review/Project and Midterm 2	October 17	
8	Discrete Outcomes	October 24	Chapter 13
9	Intro to Instruments	October 31	Mostly Harmless*
10	Intro to Panel Data	November 7	Chapter 16
11	Intro to Time-Series	November 16	Chapters 12, 15
12	Various other topics	November 30	Mostly Harmless*
	Conclusions and Overview	December 5	

*Indicates additional readings will be posted online