THE UNIVERSITY OF TENNESSEE KNOXVILLE

Economics 381: Introduction to Econometrics
Syllabus, Fall 2016

Meeting Time Tuesday and Thursday, 9:40–10:55, Haslam 302.

Faculty Information

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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. Do not interfere in your classmates' learning experience.
2. 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.
3. Turn your phones off. You should also turn your laptop off. Educational and psychological

research[1] shows laptop use is a distraction and reduces the performance of both the laptop-user *and* other nearby students. Students who are distracted by outside technology during class will at a minimum have class participation points docked.

Resources for the Course

Textbook: Studenmund's "Using Econometrics, A Practical Guide". The text is now in its seventh edition, but earlier editions should be fine. A copy will be held in the Course Reserves section of Hodges Library. Used copies of the sixth edition are available online for $50. Relying on an older version implies you accept responsibility for covering the correct material. I list suggested study questions from both the sixth and seventh editions.

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.

Software: All students will need access to Microsoft Excel and a statistical software package. In class, we will use Stata. Stata is available for free to UT students on the Apps@UT system. Problems with accessing Stata through the server will not constitute a valid reason for incomplete assignments. If you're considering pursuing data analysis further, you should know that Stata is available at discounted prices for students wishing to purchase their own copy.

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 (20%) — 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 and will be graded for completeness, effort, and correctness (in that order). If you successfully complete Problem Set 0, I will drop your lowest problem set grade when calculating final grades.

[1] See e.g. Ophir et al. (2009) and Kraushaar & Novak (2010), or Sana et al. (2013): "We found that participants who multitasked on a laptop during a lecture scored lower on a test compared to those who did not multitask, and participants who were in direct view of a multitasking peer scored lower on a test compared to those who were not."

Research Paper (20%) — 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 one-to-two page proposal outlining your paper topic. This proposal will cite at least two 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, which I will provide some feedback on. Third, you will produce a polished version of the final paper, which is due on November 23. Each student will turn in a description of the data, results and interpretation not to 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, perhaps more importantly for resume purposes, official recognition from the Department of Economics as the recipient of the Outstanding Data Project Prize.

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 6th 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 excused absence will have the weight from that exam shifted to the final. Students who miss an exam/deadline without a valid written excuse 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 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. 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 provisional.

	Topic	Approximate Date	Reading
1	Introduction and OLS	August 18	Chapters 1-3⋆
2	The Classical Model	August 25	Chapter 4
3	Identification and Interpretation	September 1	Mostly Harmless⋆
	Review/Project and Midterm 1	September 8	
4	Hypothesis Testing	September 13	Chapter 5
5	Model Specification	September 20	Chapters 6-7
6	Multicollinearity	September 29	Chapter 8
7	Heteroskedasticity and autocorrelation	October 4	Chapters 9-10
	Review/Project and Midterm 2	October 18	
8	Discrete Outcomes	October 25	Chapter 13
9	Intro to Instruments	November 1	Mostly Harmless⋆
10	Intro to Panel Data	November 8	Chapter 16
11	Intro to Time-Series	November 17	Chapter 12
12	Intro to Forecasting	November 29	Chapter 15
	Conclusions and Overview	December 1	

⋆Indicates additional readings will be posted online