

ECON 570: Applied Econometrics

Instructor:	Stephen Lich-Tyler
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Website:	http://sakai.unc.edu
Office hours:	Gardner 303, Mondays and Wednesdays 12:30-2:00 (or appointment)
Meeting times:	Mondays, Wednesdays, and Fridays 10:00-10:50 (Section 003) Mondays, Wednesdays, and Fridays 11:00-11:50 (Section 002)
Meeting place:	Gardner Hall, Room 308
Materials:	Wooldridge: <u>Introductory Econometrics</u> , 5th edition (recommended) Angrist and Pishke: <u>Mostly Harmless Econometrics</u> (recommended) Intercooled Stata (required; any recent version) Lich-Tyler: "Study Guide for Econometrics" (required; on website)
Prerequisites:	Economic Statistics (ECON 400; grade of B+ or better recommended)

This course teaches advanced econometric techniques for empirical analysis. At the end, you should have the skills to analyze data in order to answer economic questions for a government agency, consulting firm, or similar activity. The emphasis is practical, but many of the lectures will be theory and technique. You must understand these in order to know why a particular estimator is appropriate in some situations, but inappropriate in others.

Attendance: Regular attendance is strongly encouraged, but I don't monitor attendance formally. Regardless of whether you attend, I expect that you will submit assignments on time and that you know any announcements made in class.

Announcements: When I need to make administrative announcements (about assignments, changes to the schedule, or such), I will write them on the board at the start of lecture, or I will email the class. The course website on Sakai contains handouts, assignments, old exams, and other materials.

Rescheduled lectures: The usual calendar is not conducive to doing an empirical project. We will not have lectures after April 12th; the last two weeks are for your research only. Instead, these lectures will be rescheduled earlier in the evening earlier in the semester. Each rescheduled lecture will be repeated twice. You will need to attend Feb. 11th or 12th, and Feb. 18th or Feb. 19th, from 6-8pm (tentatively).

Grading: Your grade will be based on homeworks, two exams, and a paper. This weighted average will determine your overall letter grade, but there are no fixed points in the distribution for each grade.

Problem sets	10%
Quizzes (Fridays)	10%
Midterm exam (Mon., Feb. 25th)	20%
Final exam	30%
Section 003 (MWF 10): Wed., May 1, 9-11.	
Section 002 (MWF 11): Fri., May 3, 9-11.	
Empirical project (Mon., Apr. 29)	30%

Exams: The dates of the exams and quizzes are almost certain. There will be no make-up midterm or quizzes; if you miss one for a legitimate reason, your overall grade will depend on the other assignments. The final exam is given in compliance with UNC final exam regulations and according to the UNC Final Exam calendar.

Homework: Homework assignments must be turned in at one of two times: either at the end of lecture on the due date or (with permission) at the end of the *next* class. I recommend that you submit them neatly, in order, and with multiple pages attached.

Quizzes: On the last day of every other week (Jan. 25th, Feb. 8th and 22nd, Mar. 22rd, and Apr. 12th), there will be a ten-minute, fixed-response quiz over the most recent material. Your highest four quizzes count toward your overall grade. If you miss a quiz for any reason, your quiz score

is based on the remaining four quizzes. (In other words, the lowest quiz grade will be dropped if you take them all, but any absences automatically count as your dropped quiz.)

Empirical project: For the empirical project, you must use data to answer some economic question, using econometric techniques from this course. You must write a paper (approximately 7-10 pages) to explain the research question, the data, the estimation technique, and the results. My expectations are that: you will use an econometric technique more sophisticated than OLS, and you will state and test a hypothesis clearly and directly. I will give you more information later in the course.

Schedule: Quiz and exam dates are almost certain. All other dates are subject to change. The calendar given to you with this syllabus is only an approximation.

Extra credit: If there are any opportunities for extra credit, they will always be announced publicly and made available to the entire class.

Accommodations: Please inform me of any unusual circumstances at your earliest convenience, so that I can accommodate them in the best manner possible.

Classroom etiquette: Please create only positive externalities.

Academic integrity: Students may consult each other on homework assignments. However, each student should do the problems on his or her own, and each student must submit a unique assignment. Students may bring a single page of their own handwritten notes to each quiz, but not to either exam. Any reference materials made be used for the empirical project, but copying any information from an undocumented source (including public domain sources or the internet) is plagiarism, which is an honor code violation.

Syllabus changes: The instructor reserves the right to make changes to the syllabus, including due dates and test dates. Changes will be announced as early as possible.

<u>Date</u>	<u>Topic</u>	<u>Assignment</u>	<u>Project</u>
Wed., Jan. 9 th :	Introduction	--	--
Fri., Jan. 11 th :	Linear model and OLS	--	--
Mon., Jan. 14 th :	Linear model and OLS	--	--
Wed., Jan 16 th :	Linear model and OLS	--	--
Fri., Jan 18 th :	Variations	--	--
Mon., Jan. 21 st :	Holiday	--	--
Wed., Jan. 23 rd :	Variations	Homework #1	--
Fri., Jan. 25 th :	Empirical project	Quiz #1	Think about question
Mon., Jan. 28 th :	Correlation does not imply causality	--	Think about question
Wed., Jan. 30 th :	Regression	--	Think about question
Fri., Feb. 1 st :	Regression	--	Think about question/data
Mon., Feb. 4 th :	Instrumental variables	Homework #2	Discuss question
Wed., Feb. 6 th :	Instrumental variables	--	Think about question/data
Fri., Feb. 8 th :	Instrumental variables	Quiz #2	Finalize question
Mon., Feb. 11 th :	Instrumental variables	--	Look for data
Feb. 11 th or 12 th :	Heteroskedasticity, GLS, and WLS	--	--
Wed., Feb. 13 th :	Instrumental variables	--	Look for data
Fri., Feb. 15 th :	Systems of equations	--	Look for data
Mon., Feb. 18 th :	Systems of equations	Homework #3	Discuss/look for data
Feb. 18 th or 19 th :	Policy analysis	--	--
Wed., Feb. 20 th :	Systems of equations	--	Discuss/look for data
Fri., Feb. 22 nd :	Empirical project	Quiz #3	Discuss/look for data
Mon., Feb. 25 th :	Midterm exam	--	Look for data
Wed., Feb. 27 th :	Panel data	--	Look for data
Fri., Mar. 1 st :	Panel data	--	Finalize data source; obtain data
Mon., Mar. 4 th :	Panel data	--	Begin cleaning data
Wed., Mar. 6 th :	Panel data	Homework #4	Clean
Fri., Mar. 8 th :	Work on project	--	Clean
Mar. 11 th -Mar. 15 th :	Spring break	--	--
Mon. Mar. 18 th :	Panel data	--	Clean/ discuss
Wed., Mar 20 th :	Panel data	--	Clean/ discuss
Fri., Mar 22 nd :	Panel data	Quiz #4	Clean/ discuss
Mon., Mar. 25 th :	Limited dependent variables	--	Clean/ discuss
Wed., Mar. 27 th :	Limited dependent variables	--	Clean/ discuss
Fri., Mar. 29 th :	Holiday	--	--
Mon., Apr. 1 st :	Limited dependent variables	Homework #5	Have cleaned, usable data
Wed., Apr. 3 rd :	Limited dependent variables	--	Analyze
Fri., Apr. 5 th :	Censored regression	--	Analyze
Mon., Apr. 8 th :	Selection	--	Analyze
Wed., Apr. 10 th :	Selection	--	Analyze
Fri., Apr. 12 th :	Empirical project	Quiz #5	Obtain preliminary results
Mon., Apr. 15 th :	Work on project	--	Discuss/ analyze
Wed., Apr. 17 th :	Work on project	--	Discuss/ analyze
Fri., Apr. 19 th :	Work on project	Homework #6	Start final analysis
Mon., Apr. 22 nd :	Work on project	--	Discuss/ analysis
Wed., Apr. 24 th :	Work on project	--	Complete final analysis
Fri., Apr. 26 th :	Optional review	--	Write results
Mon., Apr. 29 th :	Nothing	--	<u>Paper due</u>
Wed., May 1 st , 9:00-11:00:	Final exam for 570-003 (meeting MWF 10:00)		
Fri., May 3 rd , 9:00-11:00:	Final exam for 570-002 (meeting MWF 11:00)		