Economics 388 - Introduction to Econometrics

Winter 2019 - Department of Economics

<u>Instructor</u>: Mark Showalter <u>TA</u>: Jacob Fisher

435A CTB, (801) 422-4645,

Office Hours: Mon-Thurs 8:00-9:00am

Also by appointment

Required Material: - Introductory Econometrics: A Modern Approach, 6th Edition, Jeffrey

M. Wooldridge. (ISBN: 978-1-305-27010-7)

STATA Statistical software

Optional Material: - Mastering Metrics, Joshua D. Angrist & Jorn-Steffen Pischke.

The Elements of Style, 4th Edition, William Strunk Jr., E.B. White

Course Objective:

This course is designed to provide the basic statistical skills for doing empirical economic research. These skills include an understanding of the theory of econometrics and experience estimating empirical models using econometric software. These skills will be developed through the completion of problem sets, quizzes, two tests (a midterm and a comprehensive final), and an original research paper. This course will focus on single equation models with a particular emphasis on linear models.

Course Grading:

Grades will be based on the following allocation:

Assignments 20%
Quizzes 5%
Midterm 20%
Final 40%
Research Paper 15%

Scores will be posted on Learning Suite (LS). Students are responsible to check the class page on LS for announcements and to ensure that all grades have been correctly entered.

Research Paper

The research paper will consist of a project where you will collect data, put it into a useable computer format, test various hypotheses, and interpret the results. More information will be provided in a separate handout.

Assignments

Assignments will consist of problems sets, readings, data exercises, and miscellaneous work. Problem sets are to be handed in by 5:00 pm in the TA's box in 465 CTB. Problem sets will generally have two sections: a 'theory' section and a set of computer exercises:

- 1) The theory section is to be done in groups of 2-4 people with a single problem set being handed in for the group. The names of all members of the group must be included with the homework. I strongly recommend that all members of the group do <u>all</u> the exercises individually because homework problems often show up in exact or modified form on exams.
- 2) The computer exercises are to be done individually. Completed work is to be posted on LS. The grade for the problem set will be the sum of the individual and group components.

The due dates for problems sets are listed in the syllabus. The two lowest problem set scores will be dropped for grading purposes. **No late problem sets will be accepted.** Other assignments will be given on an ad hoc basis.

Stata is available in the SWKT basement computer lab and a personal copy is available for purchase from the Stata web site. Instruction for purchasing a personal copy can be found on the department web page under "Students"/"Computer/Software Information":

https://economics.byu.edu/Pages/Students%20Tab/ComputerSoftware.aspx. We will schedule regular lab hours to help with homework.

Exams & Quizzes

A midterm exam will be given in the testing center on the listed date. The comprehensive final will be given in the assigned classroom. Exceptions to taking the exams on the listed dates will be very rare. It is the student's responsibility to ensure that adequate time is available to take the midterm in the testing center.

The quizzes will be given on the dates listed in the syllabus. The two lowest scores will be dropped. **No makeup quizzes will be given.**

Honor Code Standards

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university.

Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

Preventing Sexual Discrimination or Harassment

Sexual discrimination or harassment (including student-to-student harassment) is prohibited both by the law and by Brigham Young University policy. If you feel you are being subjected to sexual discrimination or harassment, please bring your concerns to the professor. Alternatively, you may lodge a complaint with the Equal Employment Office (D-240C ASB) or with the Honor Code Office (4440).

Students with Disabilities

If you have a disability that may affect your performance in this course, you should get in touch with the office of Services for Students with Disabilities (1520 WSC). This office can evaluate your disability and assist the professor in arranging for reasonable accommodations.

Student Learning Outcomes

Each program at BYU has developed a set of expected student learning outcomes. These will help you understand the objectives of the curriculum in the program, including this class. To learn the expected student outcomes for the programs in this department and college go to http://learningoutcomes.byu.edu and click on the College of Family, Home and Social Sciences and then this department. We welcome feedback on the expected student learning outcomes. Any comments or suggestions you have can be sent to <a href="https://example.com/en-the-programs-programs-parameter-programs-parameter

FHSS Writing Lab

To get help with your paper's organization, structure, focus, tone, and documentation style, you can go to the FHSS Writing Lab in 1049 JFSB to meet one-on-one with a peer advisor. All advisors are students from our college and are trained in APA, Turabian, and some AMA and MLA.

To prepare for a tutorial, take

- o a copy of the assignment
- o a hard copy of your draft, whatever stage it may be in
- o a list of questions and concerns you have about your paper

Walk in Monday through Friday 9:00 a.m. – 5:00 p.m. or make an appointment online: http://fhsswriting.byu.edu. For more information, go to their website or email fhss-writinglab@byu.edu

Economics 388 -- Introductory Econometrics Course Outline--Winter 2019--Showalter

Date		<u> </u>	General Topic	Readings	Assignments
Jan	7	Mon	Introduction to Econometrics	1, App A	
	9	Wed	Statistics Review	App B, C1, C2, C5-C7	PS 1, Bio, Pope Quiz
	14	Mon	Bivariate Regression I	2	
	16	Wed	Bivariate Regression II	2	PS 2, Q1
	21	Mon	Holiday-No Class		
	23	Wed	Matrix Algebra	Notes, App D	PS3, Q2, Ch19 Quiz
	28	Mon	Multiple Regression I	3, App E	PS4
	30	Wed	Multiple Regression II	3	Q3, Proposal Due
Feb	4	Mon	Multiple Regression III	7.1-7.4	Witches Quiz ²
	6	Wed	Inference I	4	PS 5, Q4, WL Appt
	11	Mon	Inference II	4	
	13	Wed	Computer Lab		D1
	19	Tues	Specification Issues I	6	PS 6, Q5
	20	Wed	Specification Issues II	6	

Feb 21-22, Thurs-Fri Midterm Exam (Testing Center)

	25	Mon	Asymptotics	5, App C3		
	27	Wed	Heteroskedasticity	8		
Mar	4	Mon	Heteroskedasticity, LPM	8, 7.5-7.7	PS 7, Q6	
	6	Wed	Data Problems	9.4, 9.5	D2	
	11	Mon	Endogeneity/Instrumental Variables I	15	PS 8, Q7	
	13	Wed	Endogeneity/Instrumental Variables II	15	Pollution & IV ³	
	18	Mon	Time Series I	10	PS9	
	20	Wed	Time Series II	11	Q8, Data Due	
	25	Mon	Time Series III	12	PS 10	
	27	Wed	Difference-in-Difference Estimation/Panel Data	13	Q9, D3	
Apr	1	Mon	Maximum Likelihood	17.1	PS 11	
	3	Wed	Probit and Logit Models I	17.1	Q10, WL Appt.	
	8	Mon	Probit and Logit Models II		Paper due on 10th	
	10	Wed	Regression Discontinuity	Notes	PS 12	
	15	Mon	Machine Learning	Notes	Q11	
	17	Wed	Class Presentations			
Apr	23 Tues Comprehensive Final Exam 2:30pm - 5:30pm B119 MARB					

This outline is tentative, except for the testing dates. Lecture schedule and assignments may change, but any changes will be posted on Learning Suite. Readings are from Wooldridge, 6th Edition. "PS" refers to Problem Set, "Q" is Quiz. **Bolded** items in Assignment column refer to due dates for the research project/paper. "D" refers to a data exercise. *Additional notes:*

^{1) &}quot;Witchcraft, Weather and Economic Growth in Renaissance Europe," by Emily Oster

^{2) &}quot;Pollution, Health, and Avoidance Behavior: Evidence from the Ports of Los Angeles" by Matthew Neidell and Enrico Moretti