UNIVERSITYof **HOUSTON**

Introduction to Econometrics – Econ 4365
Fall Semester – 2011
11:30 am - 1:00 pm, Tuesday -Thursday, McElhinney Hall 117

Contact information

Instructor:
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                                            Office hours: Thursday 1.45 pm – 2.45 pm

Course Description

Econ 4365 introduces students to multiple regression methods for analyzing data in economics and related disciplines. Extensions include regression with panel data, instrumental variables regression, analysis of randomized experiments. The objective of the course is for the student to learn how to conduct – and how to critique – empirical studies in economics and related fields. Accordingly, the emphasis of the course is on empirical applications. The mathematics of econometrics will be introduced only as needed and will not be a central focus.

Prerequisites

Students are expected to have taken an introductory course in probability and statistics such as Econ 2370. Homework 1 provides a review of these skills.

Textbook

James H. Stock and Mark W. Watson (SW): Introduction to Econometrics, *3rd edition*, *Pearson Addison-Wesley, 2011, ISBN-10: 0138009007. Do <u>NOT</u> buy previous editions of this book.*

I recommend buying the "Custom edition" of this book:
Pearson – Custom Business Resources, Introduction to Econometrics, University of Houston – Economics, Professor Andrea Szabo, Fall 2011, ISBN-10: 1256028266

This contains only the chapters we cover during this class at a reduced price. This custom edition is available only at the University of Houston Main Campus bookstore or online at http://uh.bncollege.com. Click on "Textbooks" and use the textbook lookup tool here.

Course Requirements

There will be 10 homework assignments, 2 midterms, and a final.

All homework assignments will be done online through the Coursecompass website. Each student is required to enroll in Coursecompass. Please go to **www.pearsonmylabandmastering.com** and register as Student. The course id for this class is: **szabo39636.** You will need to purchase a student access code online which costs $14.40. See more details on the attached page.

Midterms will be given in class on the dates listed in the calendar. There are no makeup midterms. If a student, for whatever reason, is unable to take one of the midterms at the scheduled time, I will base the student's final grade on the other course components in the manner described below in the section labeled "Course Grade." Specifically, in such a case, "Weighting 1" or "Weighting 2" will be used depending on whether the student missed midterm 1 or midterm 2.

All exams are open book and open notes; bring a calculator. No computers of any kind, cell phones or programmable calculators. No cooperation is allowed during the tests. Academic misconduct will not be tolerated and any instances of it will be dealt with according to the appropriate University channels.

If you disagree with the grading of a midterm, submit it for further review. You must submit a written argument for why you deserve more points for the specific question(s) you would like re-graded. If you do not specify this, the entire test will be regraded and it is possible that you may lose points. You must submit these arguments within one week after the midterm has been returned.

The final exam will be cumulative with some emphasis on the material covered after the second midterm.

Class Website
All assignments and handouts will be posted on the class website in Coursecompass.

Statistical software package
You will be required to use *Stata*, a statistical software package. Public versions of *Stata* are available at selected locations on UH campus. Students registered in the econometrics class may use the six computers in the Economics Department Undergraduate Computer Lab in room 208 E McElhinney (hours: M-Th, 8am-4:30pm, F 9am-2pm).

UH has an agreement called "GradPlan" with *Stata* that allows students to purchase various products at much reduced rates directly from *Stata*. The current version is *Stata 12* (released July 2011). I suggest that you buy *Small Stata* which will be able to handle all of the problems that I will assign in the course. The current pricing for 6 month licenses is $32 for *Small Stata*. For more detail and to order *Stata* online see the GradPlan website indicted below.

http://www.stata.com/order/new/edu/gradplans/gp-direct.html

Grading
The overall numerical course score will be determined by weighting the course components three different ways and using the highest weighted score. I will drop your lowest 2 homework scores to allow for some flexibility. Thus you will have 8 assignments that count towards your final grade.

Course Component	Weighting 1 (MT1 is lowest score)	Weighting 2 (MT2 is lowest score)	Weighting 3 (Final is lowest score)
Problem Sets	20	20	20
Midterm 1	0	30	25
Midterm 2	30	0	25
Final	50	50	30
Total	100	100	100

The numerical course grade will be converted to a letter grade according to the following scale:

The grading scale is:

92%-100%	A
90%-91%	A-
88%-89%	B+
82%-87%	B
80%-81%	B-
78%-79%	C+
72%-77%	C
70%-71%	C-
68%-69%	D+
60%-67%	D
-59%	F

I reserve the right to lower the percentages.

Tentative Course Schedule:

Class #	Date/Day			Topic	SW Ch. #	Problem Sets
1	Aug	23	T	Economic Questions and Data	Ch. 1	
2		25	Th	Review of Probability, STATA Introduction	Ch. 2	
3		30	T	Review of Statistics, STATA Introduction	Ch. 3	
4	Sept	1	Th	Linear Regression with One Regressor I. *The linear regression model*	Ch. 4 p. 111-126	
5		6	T	Linear Regression with One Regressor II. *The Least Squares Assumptions*	Ch. 4 p. 126-142	PS 1 Due
6		8	Th	Linear Regression with One Regressor III. *Hypothesis Tests, Confidence Intervals*	Ch. 4 p. 149-159	
7		13	T	Linear Regression with One Regressor IV. *Regression when X is Binary*	Ch 5 p. 159-161	PS 2 Due
8		15	Th	Linear Regression with One Regressor V. *Heteroskedasticity, Homoskedacity*	Ch 5 p. 160-167, 172-180	
9		20	T	Linear Regression with Multiple Regressors I. *Omitted Variable Bias, The Multiple Regression Model*	Ch 6 p. 187-200	PS 3 Due
10		22	Th	Linear Regression with Multiple Regressors II. *Measure of Fit* Review for Midterm I	Ch 6 p. 201-203	
11		27	T	**Midterm I**		
12		29	Th	Linear Regression with Multiple Regressors III. *Multicollinearity*	Ch 6 p. 202-219	
13	Oct	4	T	Linear Regression with Multiple Regressors IV. *Hypothesis Tests*	Ch 7 p. 223-238	PS 4 Due
14		6	Th	Linear Regression with Multiple Regressors V. *Confidence Sets, Model Specification*	Ch 7 p. 238-251	
15		11	T	Nonlinear Regression Functions I. *General Strategy, Nonlinear Functions of Single Independent Variables.*	Ch 8 p. 264-286	PS 5 Due
16		13	Th	Nonlinear Regression Functions II. *Interactions Between Independent Variables*	Ch 8 p. 286-318	
17		18	T	Assessing Studies Based on Multiple Regression I. *Internal and External Validity*	Ch 9 p. 326-343	PS 6 Due

18		20	Th	Assessing Studies Based on Multiple Regression II. *Example: Test Scores and Class Size*	Ch 9 p. 343-362	
19		25	T	Regression with Panel Data I. *Fixed Effects*	Ch 10 p.363-374	PS 7 Due
20		27	Th	Regression with Panel Data II. *Time Fixed Effects, Standard Errors* Midterm II Review	Ch 10 p.374-381	
21	Nov	1	T	**Midterm II**		
22		3	Th	Regression with Panel Data III. *Example: Drunk Driving Laws and Traffic Deaths*	Ch 10 p. 381-396	
23		8	T	Instrumental Variables Regression I. *IV Estimator with a Single Regressor and a Single Instrument, General IV Regression Model*	Ch 11 p. 397-415	PS 8 Due
24		10	Th	Instrumental Variables Regression II. *Instrument Validity*	Ch 11 p.415-421	
25		15	T	Instrumental Variables Regression III. *Example: Demand for Cigarettes*	Ch 11 p. 421-438	
26		17	Th	Experiments I. *Potential Problems with Experiments in Practice*	Ch 12 p.447-456	PS 9 Due
27		22	T	Experiments II. *The Differences-in-Differences Estimator*	Ch 12 p.465-472	
28		24	Th	**No class. Thanksgiving.**		
29		29	T	Experiments III. *Example: The Tennessee Class Size Reduction Experiment*	Ch 12 p.456-465	
30	Dec	1	Th	Discussion of final exercise		PS 10 Due

FINAL – Thursday, Dec 15, 11:00 am - 2:00 pm