Econ 6160: Econometric Analysis – Spring 2016

Instructor: Dr. Juan Moreno-Cruz (morenocruz@gatech.edu) -- Office Hours: by appointment
Teaching Assistant: Alaina Totten (alainatotten@gatech.edu) -- TA Office Hours: M 14:00-16:00
Class Meetings: TR 09:35 - 11:55 ES&T L1175

Course Description: The purpose of this course is to introduce students to modern applied econometric methods. Topics include randomized trials, regression, differences- in-differences, instrumental variables, regression-discontinuity designs, and simultaneous equations models.

Course Main Goal: When we are done with this course you should be able to plan and execute your own empirical projects.

Textbooks:

- J. Angrist and J.S. Pischke, *Mastering 'Metrics: The Path from Cause to Effect*, Princeton University Press, 2014 **(MM).**
- Stock, James H, Watson, Mark W., *Introduction to econometrics 3/e*- Pearson, 2011 **(SW)**
- J. Angrist and J.S. Pischke, *Mostly Harmless Econometrics*, Princeton University Press, 2009 **(MHE).**
- Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach 5/e*, South Western Cengage Learning, 2013 **(W)**

Course Requirements and Grading:
As an incentive to show up, I will verify class participation. Late arrival is equivalent to a no-show. There are also two (2) in-class pop quizzes at the beginning of the class.
There are 5 graded problem sets and ungraded review problem sets at the beginning and end of the course. The problem sets have both analytical and computer-exercise components. *Stata* is our default programming language for problem sets. Classes focus on concepts and econometric applications. Help for new *Stata* users will be given by our TA. We'll have an in-class midterm and a final during exam week.
Our (mandatory) in-class midterm is scheduled for March 10, 2016. No makeup tests for midterm will be administered. If there are exceptional circumstances and you can't take the regularly scheduled test, you must notify me before the regularly scheduled test with a legitimate reason along with official documentation. With an acceptable excuse, the final exam will be used to determine the course grade.

Grade determination: Grades are computed as follows: a total of 100 points, 25 points for problem sets (5 points each), 30 points for the midterm, 30 points for the final, and 15 points awarded as follows: Up to 5 points for attendance (.5 for each class attended up to 10; on-time arrival required) 5 each for 2 pop quizzes (absent or late counts as zero).
Graded problem sets are mandatory and solutions must be submitted on time to receive credit. *Stata* logs are to be submitted with solution sets. A grade of 75% or better on at least 4 problem sets is required to pass the course. **Consult with classmates on problem sets if you get stuck, but solutions must be your own work.**

Grade scale:

A's Above 90%
B's Between 80%-90%
C's Between 60%-80%
D's Between 50%-60%
F's Below 50%

Course Guidelines

Econometrics requires love, focus and attention. When you are in class, pay attention. Listen. Ask questions. Do not bring food to class (non-alcoholic drinks are ok) and leave electronics and other toys shut off and put away. Drones are not allowed.

Any violation of Honor Code will be referred to the Dean of Students Office.

Tentative Course Schedule

Date	Topics we learn	Readings
Jan 12	Introduction	
Jan 14	No Class	
Jan 19	Introduction to Causal questions	MM Intro/SW 1/MHE 1/W 1 and 19
Jan 21	Counterfactuals and Selection Bias	MM 1.1/SW 13.1/MHE 2.1
Jan 26	Health Insurance and Experiments	MM 1.1 - 1.2/MHE 2.2/SW 13.1- 13.2
Jan 28	The Standard Error of the Mean	MM 1.Appendix/SW 3/MHE 3.1
Feb 2	Statistical inference for Difference in Means	MM 1.Appendix/SW 3/MHE 3.2
Feb 4	Matching	MM 2.1 -2.2/MHE 3.3
Feb 9	Omitted Variables Bias	MM 2.3
Feb 11	Bivariate Regression	MM 2.Appendix/SW 4.1-4.2/W 2
Feb 16	Stata Lab – Basic Regression	
Feb 18	Properties of Regression	MM 2. Appendix/SW 4.3/W 3
Feb 23	Inference in Bivariate Regression	MM 2. Appendix/SW 4.4 , 4.5- 5/W 4
Feb 25	Multivariate Regression	MM 2. Appendix/SW 6/W 2
Mar 1	Inference in Multivariate Regression	MM 2. Appendix/SW 7/ W 3-4
Mar 3	Controls and Causality	MM 2.3/SW 5.3 8.4-8.5 and 9/ W 7
Mar 8	Measurement Error	MM 6. Appendix/SW pages 361-364/W 8
Mar 10	Midterm	
Mar 15	Instrumental Variables	MM 3.1/MHE 4.1/W 15
Mar 17	Two Stage Least Square	MM 3.3/MHE 4.2/W 15
Mar 22	Understanding Instrumental Variables	MM 3.Appendix/SW 12.1-12.3/MHE 4.4-4.6/ W 16
Mar 24	Spring Break	
Mar 29	Spring Break	
Mar 31	Differences in Differences	MM 5.1/SW 10.1 -10.2/MHE 5.1-5.2/ W13
Apr 5	Stata Lab - IV	
Apr 7	Stata Lab – Diff-in-Diff	
Apr 12	Panel Data	MM 5.2/SW 10.3 -10.4/MHE 5.3/W 14
Apr 15	Panel Data and Fixed Effects	MM 5.Appendix/SW 10.5 and 10.6/MHE 5.3 -5.4
Apr 19	Regression Discontinuity	MM 4.1/MHE 6.1
Apr 21	Regression Discontinuity in Action	MM 4.2/MHE 6.1
Apr 26	Review class	MM 6
Apr 28	No Class	

Note: I will generally follow the above sequence. I may add or subtract topics.