

Syllabus

Instructor: Dr. Yariv Fadlon.

office: Harper East 203

email: yariv.fadlon@cgu.edu

phone: (909) 621-8784

office hours: Wednesday 10-12 or by appointment (the best way to reach me is via email).

Teaching assistant: Roman Garagulagian

email: roman.garagulagian@cgu.edu

office hours: Thursday 11am-12pm

Textbook:

- **Required:** "Econometric Analysis of Cross Section and Panel Data" by Jeff Wooldridge, MIT press, 2010. ISBN: 978-0-26-223258-6
The book contains many examples and questions using real data found in the following website: <http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=11227&xid=13&xcid=16146>
- **Recommended:** "Microeconometrics Using Stata, Revised Edition" by Cameron and Trivedi, Stata Press; 2 edition, 2010, ISBN:1597180734 .

Overview: This course is a continuation of Econ382-Econometrics I. It will cover important topics and techniques that have been developed and applied in microeconometrics. While applications of these models and methods are often found in microeconomics fields, they are also quite useful in other economic fields and other social sciences. Specifically, we will mainly focus on the following topics: instrumental variables, limited dependent variables, qualitative variables and panel data, and treatment effects. These models and techniques have wide applicability in empirical work and have been areas of great interest in econometrics in past decades. In addition to the emphasis on the statistical inference for these models, we will also pay attention to the application of these models in industrial organization, labor, health, and elsewhere in economics and social sciences. It is hoped that throughout the course, students will gain a thorough knowledge and understanding of the recent developments in these topics, and also develop useful skills in applying the methods to the empirical work. The focus will be on empirical work rather than on theoretical topics.

Computing and Software: This course is designed to introduce students to those microeconomic methods that are useful in applications. The assignments will cover both methods and applications and will provide an opportunity to learn the operational aspects of the subject. STATA is recommended as it is a good software package to use for most of the computational work in the course. The recommended textbook provides excellent background and examples. Most of the

material is available online, but the textbook is built in a logical way to save you a lot of time. As of August 2015, the price on Amazon is \$65.

Time and location: This class will meet Tuesday at 1:00pm - 3:50pm in Academic Computing 214. Please bring your personal laptop to every class as we will practice some of the models using Stata.

Grades: The graded material in this class is divided into four parts: homework assignments, one midterm exam, a final exam, and a final research presentation. These parts will count toward your final grade as follow:

	Percentage
Homework	25%
Midterm	30%
Final Exam	35%
Final Presentation	10%

HW: Some of the homework will involve econometric estimation. You are allowed to use any statistical software, but it's highly recommended to use Stata. Please turn in your homework directly to the TA, as Roman is responsible for grading them. If for any reason you are not able to turn in your answers on time, you must contact me or Roman **prior** to the due time.

Midterm: The date of the midterm is on the attached schedule. Please plan your schedule accordingly. The exam will be based on all the material covered since the beginning of the semester up until the class before the midterm. In the week before the exam, I will review the material and give you some practice problems so you will have a better understanding of what to expect in the exam.

Final Exam: The final exam will be on the last class in December 15th during class time. This time is unchangeable. The exam will cover all the material since the beginning of the semester, but will focus on the material covered after the midterm exam.

Final Research Presentation: After the midterm, you will each be assigned to a group of 3-4 students. You are allowed to switch groups as long as the group size is four at the most. That means you don't have to switch with another student if the group you want to join has three members, for example. You are also allowed to work by yourself if you choose to do so, but your grade is not a function of the group size! Please email the TA if you decided to switch groups.

Each group will have to choose a question and analyze a relevant dataset to answer the question. You must use one of the models described in class. I will post several datasets online for you to choose from to answer your question, but you are allowed and encouraged to use a different dataset. On the week before the final exam, each group will present their question and the analysis. You do not have to submit a final paper! Your grade will be based on your creativity, analysis and the ability to understand the outputs.

Important dates relevant to the final presentation:

- Oct 7: Contact the TA if you wish to work with a specific student(s). The TA will try to accommodate your request.
- Oct 14: Group assignments.
- Nov 4: Submit the question, dataset, and model to the TA. If you miss this date, the TA will email you with a question for you to analyze.
- December 8: Presentations day.

Attendance Policy: Students are expected to attend all classes for the full length of the class period. If you miss a class, you are responsible for getting all notes and/or announcements from fellow students.

Academic Accommodations for Disabled Students: Any student with a disability who needs an accommodation or assistance in this course should make an appointment to speak with me as soon as possible.

Reading Assignments and Schedule: Below you will find a schedule of the course and reading assignments. The discussions will be more productive for you if assignments are read prior to the class on that date.

Week #	Date	Wooldridge	Cameron and Trivedi
1	9/1/2015	CH1-2	CT1 Basic Commands in Stata
Topic: Introduction. Conditional Expectations and Related Concepts.			
2	9/8/2014	CH3-4	CT2 Data Management CT3 Simple linear regression + hypothesis tests
Topic: Basic Asymptotic Theory. Single Equation Linear Model and OLS Estimation.			
3	9/15/2014	CH5-6	
Topic: Instrumental Variable Methods.			
4	9/22/2014	CH6-8	CT6
Topic: Instrumental Variable Methods + Systems of Regression Equations			
5	9/29/2014	CH9-10	CT5
Topic: Simultaneous Equation Models +Panel Data			
6	10/6/2014	CH10-11	CT 8-9
Topic: Panel Data			
7	10/13/2014	Midterm Exam	
8	10/20/2014	CH12-14	CT6,CT10
Topic: Maximum Likelihood Estimation. General Method of Moments Approach.			
9	10/27/2014	CH15	CT14
Topic: Maximum Likelihood Estimation. Limited Dependent Variable Models.			
10	11/3/2014	CH16	CT15
Topic: Ordered Response Models			
11	11/10/2014	CH17-18	CT16-17
Topic: Corner Solution + Count Response Model			
12	11/17/2014	CH19	CT16
Topic: Censored Data, Sample Selection and Attrition.			
13	11/24/2014	CH20	Topic: Stratified Sampling and Cluster Sampling
14	12/1/2014	CH21	Topic: Program Evaluation
15	12/8/2014	CH22	Topic: Hazard Models. Presentations
16	12/15/2014	Final Exam	

The readings in Cameron and Trivedi is **strongly** recommended but not required.

List of Recommended Readings

1. Instrumental Variables (Weeks 3,4,8)

- Bound, Jaeger and Baker. 1995. “Problems with Instrumental Variables Estimation...” *Journal of American Statistical Association*, 90(430):443-450.
- Shea, John. 1997. “Instrumental Relevance in Multivariate Linear Models: A Simple Measure.” *Review of Economics and Statistics* 79(2):348-352.
- Hahn and Hausman. 2003. “Weak Instruments: Diagnosis and Cures in Empirical Econometrics” *American Economic Review* 93(2): 118-125
- Staiger and Stock. 1997. “Instrumental Variables Regression with Weak Instruments.” *Econometrica*, 65(3):557-586.
- Stock and Wright. 2000. “GMM with Weak Identification.” *Econometrica* 68(5): 1055-1096.
- Lewbel. 1997. “Constructing Instruments for Regressions with Measurement Error...” *Econometrica* 65(5): 1201-1214.
- Bound, Brown and Mathiowetz. 2001. “Measurement Error in Survey Data.” in Heckman and Leamer, *Handbook of Econometrics Volume 5*
- Cruz and Moreira. 2005. “On the Validity of Econometric Techniques with Weak Instruments”. *Journal of Human Resources* 40(2):393-410.

2. Panel Data (Weeks 5-6):

- Hausman and Taylor. 1981. “Panel Data and Unobservable Individual Effects.” *Econometrica* 49(6):1377-1398.
- Deaton. 1985. “Panel Data from Time Series of Cross-Sections.” *Journal of Econometrics* 30(1):109-26.
- Bertrand, Duflo and Mullainathan. 2004. “How Much Should We Trust Difference in Difference Estimates?” *Quarterly Journal of Economics* 119(1):249-275.
- Arellano and Honoré. 2001. “Panel Data Models: Some Recent Developments” in Heckman and Leamer. *Handbook of Econometrics Volume 5*
- Becker, G.S., M. Grossman and K.M. Murphy (1994): “An Empirical Analysis of Cigarette Addiction,” *American Economic Review*, 84, 396-418.
- Dionne, G., R. Gagne and C. Vanasse (1998): “Inferring Technological Parameters from Incomplete Panel Data,” *Journal of Econometrics*, 87, 303-327.
- Hajivassiliou, V.A. (1994): “A Simulation Estimation Analysis of the External Debt Crises of Developing Countries,” *Journal of Applied Econometrics*, 9, 109-131.
- Hausman, J.A. and W.E. Taylor (1981): “Panel Data and Unobservable Individual Effects,” *Econometrica*, 49, 1377-1398.

- Honore, B.E. (1992): “Trimmed LAD and Least Squares Estimation of Truncated and Censored Regression Models with Fixed Effects,” *Econometrica*, 60, 533-567.

3. Models with Qualitative and Limited-dependent Variables (weeks 9,10,11):

- Anderson, S.P, DePalma, A. and J.F. Thisse (1989): “Demand for Differentiated Products, Discrete Choice Models, and the Characteristic Approach,” *Review of Economic Studies*, 56, 21-35.
- Angrist, J.D. (1998): “Estimating the Labor Market Impact of Voluntary Military Service Using Social Security Data on Military Applicants,” *Econometrica*, 66, 249-288.
- Berry, S. (1992): “Estimation of a Model of Entry in the Airline Industry,” *Econometrica*, 60(4), 889-917.
- Bresnahan, T. and P. Reiss (1991): “Empirical Models of Discrete Games,” *Journal of Econometrics*, 48, 57-82.
- Cameron, C. and P.K. Trivedi (1998) “Basic Count Regression”, Chapter 3 in *Regression Analysis of Count Data*, Cambridge University Press.
- Deb, P. and P.K. Trivedi (1997): “Demand for Medical Care by the Elderly: A Finite Mixture Approach,” *Journal of Applied Econometrics*, 12, 313-326.
- Hausman, J.A., A.W. Lo and A.C. MacKinley (1992): “An Ordered Probit Analysis of Transaction Stock Prices,” *Journal of Financial Economics*, 31, 319-379.
- Heckman, J. (1976): “The Common Structure of Statistical Models of Truncation, Sample Selection, and Limited Dependent Variables and a Simple Estimator for Such Models,” *Annals of Economic and Social Measurement*, 5, 475-492.
- Heckman, J. (2001): “Micro Data, Heterogeneity and the Evaluation of Public Policy: Nobel Lecture,” *Journal of Political Economy*, 109, 673-748.
- Heckman, J., H. Ichimura, and P. Todd (1997): “Matching as an Econometric Evaluation Estimator,” *Review of Economic Studies*, 65, 261-294.
- Kiefer, N.M. (1988): “Economic Duration Data and Hazard Functions”, *Journal of Economic Literature*, 26, 646-679.
- McCall, B.P. (1995): “The Impact of Unemployment Insurance Benefit Levels on Reciprocity,” *Journal of Business and Economic Statistics*, 13, 189-198.
- Thomas, A. (1985): “Regulating Pollution under Asymmetric Information: The Case of Industrial Wastewater Treatment,” *Journal of Environmental Economics and Management*, 28, 357-373.
- Hajivassiliou and Ruud. 1994. “Classical Estimation Methods for LDV Models Using Simulation.” in Engle and McFadden.
- Rivers and Vuong. 1988. “Limited Information Estimators and Exogeneity Tests...” *Journal of Econometrics*, 39: 347-366.

- Smith and Blundell. 1986. “An Exogeneity Test for a Simultaneous Equation Tobit Model. . .” *Econometrica* 54(2):679-685.
- Chay and Powell. 2001. “Semiparametric Censored Regression Models” *Journal of Economic Perspectives* 15(4): 29-42.

4. Econometrics of Program Evaluation (Week 14)

- Imbens and Wooldridge. 2009. “Recent Developments in the Econometrics of Program Evaluation”. *Journal of Economic Literature* 47(1): 5-86.
- Blundell and Dias. 2009. “Alternative Approaches to Evaluation in Empirical Microeconomics.” *Journal of Human Resources* 44(3):565-640.
- Manski. 1993. “Identification of Endogenous Social Effects: The Reflection Problem” *Review of Economic Studies* 60: 531-542.
- Heckman and Vytlačil. 2007. “Econometric Evaluation of Social Programs, Part I”, in Heckman and Leamer, eds. *Handbook of Econometrics*, vol 6B.
- Heckman and Vytlačil. 2007. “Econometric Evaluation of Social Programs, Part II”, in Heckman and Leamer, eds. *Handbook of Econometrics*, vol 6B.

****** Please see me if you feel lost. Don't wait as thing will only get worse! If you can't make office hours, see me after class or email me and we will set up a mutually convenient time. ******