

SYLLABUS ECON 870: APPLIED MICROECONOMICS

Spring 2021

Professor Donna K. Ginther

Link: <https://kansas.zoom.us/j/93005405282>

Meeting ID: 930 0540 5282

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11:00-12:15 Zoom

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Office Hours Zoom Link:

Link: <https://kansas.zoom.us/j/98228248227>

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Link: <https://bakeru.zoom.us/j/91663591582>

Meeting ID: 916 6359 1582

Office Hours: MW 1:30-2:30

Course Description:

This course introduces students to the data and empirical methods used in the fields of applied economics such as labor economics, health economics, public finance, and industrial organization. The course will focus on how to adjust for self-selection and identify causal relationships in applied microeconomic fields. Topics covered include economic data and statistical programming, instrumental variables, difference-in-differences, regression discontinuity, count data, sample selection, treatment effects, and duration models. Attention will be given to the suitability of the methods to the research question under consideration. Each topic will emphasize the proper application of the methods using the standard textbook treatment as well as assigned papers that examine the basic economic issues, the econometric techniques, and the applications to data.

Prerequisites: Econ 817 and 818 or permission of the instructor.

Requirements:

Course grades are determined by a combination of 3 problem sets, one referee report, and a research paper. Problem sets will be a combination of mathematical and empirical exercises.

The Research Paper:

The research paper is an empirical project that can take one of two forms. (1) replicating a published research paper; (2) conducting original empirical research. Those who

choose to replicate a paper must do so without requesting the cleaned version of the data. The paper is meant to demonstrate that you are capable of extracting raw data and creating a data set that facilitates estimation. In either type of paper, students should apply the methods used and discussed in this course.

Grading Policy:

Late assignments will not be accepted. Letter grades you receive in the course are final. If you disagree with how course assignments are graded, you may submit a request for re-grading in writing. If the request is granted, the entire assignment will be re-graded. Your grade will be determined by a weighted average of the total points accumulated on the following requirements:

<u>Requirement:</u>	<u>Weight:</u>
1. 3 Problem Sets	60 %
2. Referee Report	15 %
3. Research Paper	25 %

Course-Related Policies:

- Attendance is not required. However, if you consistently miss class, it will adversely affect your grade because most of the material is not in the textbook. Students are responsible for obtaining missed lecture notes from their classmates. I expect that you arrive to class on time and not depart early. I also request that all cell phones and pagers are turned off for the duration of the class.
- This course requires computer literacy. You are expected to access the course website for access to problem sets, information, and readings. In addition, we will be using STATA for some of the problem sets.
- Any student with a disability that may preclude full course participation should contact the instructor in order to discuss accommodations.
- Any student who plans to observe a religious holiday that conflicts in any way with this course should contact the instructor in order to discuss accommodations.
- This course requires some writing. Bad writing = lower grade. If a paper does not meet a minimal quality of writing, I will not accept it. Thus, I encourage you to use the KU Writing Center. When you visit, bring your work in progress and a list of issues that you would like to discuss with the peer instructors. Please check the website at <http://www.writing.ku.edu> for current locations and hours. For more information, please call 864-2399 or send an e-mail to writing@ku.edu.

Office Hours:

Office hours are on Thursdays from 10 AM - 11 PM or by appointment. Occasionally, the instructor will reschedule office hours and will make announcements in class and on the course website. The most efficient way to contact the instructor outside of class is by using email: dginther@ku.edu. You may also leave a voice mail at 864-3251. However, please be certain to leave a phone number where I may reach you.

Textbooks:

Cameron, A. Colin, and Pravin K. Trivedi. *Microeconometrics Using Stata*, Second Edition, College Station, TX: Stata Press, 2010.

Wooldridge, Jeffery M. *Econometric Analysis of Cross Sectional and Panel Data, Second Edition*. Cambridge: MIT Press, 2010.

Recommended but not required:

Angrist, Joshua D. and Jorn-Steffen Pischke. *Mostly Harmless Econometrics*. Princeton: Princeton University Press, 2009.

Stock, James H. and Mark W. Watson 2011. *Introduction to Econometrics*, Third Edition. Boston: Pearson (Addison-Wesley).

Professor Scott Cunningham's *Causal Inference Mixtape*. Available online at: <https://mixtape.scunning.com/>

Software:

STATA is available in the Economics graduate student lab and in a virtual computer lab. No previous computing experience is required for this course. If you prefer to do your assignments on your home computer, you may purchase a student version of STATA. KU has a Grad Plan that gives students a discount for purchasing the software. Students may also purchase SAS from the university at a discount.

Online Resources:

Gentzkow, Matthew and Shapiro, Jesse M. 2014. "Code and Data for the Social Sciences: A Practitioner's Guide." Brown University mimeo, <http://www.brown.edu/Research/Shapiro/pdfs/CodeAndData.pdf>.

Nikolov, Plamen. 2013. "Writing Tips for Economics Research Papers." Harvard University mimeo. <http://www.people.fas.harvard.edu/~pnikolov/resources/writingtips.pdf>.

Shapiro, Jesse M. 2014. “How to Give an applied micro talk: unauthoritative notes.”
Brown university mimeo.

http://www.brown.edu/Research/Shapiro/pdfs/applied_micro_slides.pdf.

NBER Summer Institute Econometrics Lectures 2007-2016.

http://www.nber.org/SI_econometrics_lectures.html.

Professor Matt Matsen’s Causal Inference Bootcamp:

<https://www.youtube.com/user/DukeEHDI/playlists?sort=da&view=1&flow=grid>

Tentative Course Calendar:

Any changes in the course calendar will be announced in class and posted on the website.

The Week of:	Topic:	Assignment:
February 2	Overview of Statistics, Software & Data	Cameron & Trivedi, Chapters 1-2
February 9	Review of Linear Models	Wooldridge Chapters 2-4 Cameron & Trivedi Chapter 3
February 16	Review & Research Design in Microeconomics	<u>Problem Set 1</u>
February 23	Research Design in Microeconomics	
March 2	Panel Data	Cameron & Trivedi, Chapter 8 – 9. Wooldridge Chapter 10.
March 9	Difference-in-Differences	
March 16	Difference-in-Differences	<u>Problem Set 2</u>
March 23	Treatment Effects and Instrumental Variables	Cameron & Trivedi, Chapter 6. Wooldridge, Chapters 5 – 6.
March 30	Treatment Effects and Instrumental Variables	
April 6	Treatment Effects and Instrumental Variables	<u>Referee Report</u>
April 13	Regression Discontinuity	
April 20	Discrete Dependent Variables	Cameron & Trivedi Chapters 14 & 17. Wooldridge Chapter 15 (Discrete Data), Chapter 19 (Count Data) <u>Problem Set 3</u>
April 27	Truncated and Censored Data	Cameron & Trivedi, Chapter 16. Wooldridge Chapter 16-17.

May 4	Paper Presentations in class	
May 13	Paper Due	3:00 PM Word Document via email.

I. Overview of Statistics, Software and Microeconomic Data

Cameron and Trivedi, Chapters 1-2.

Schwabish, Jonathan A. 2014. "An Economist's Guide to Visualizing Data" *Journal of Economic Perspectives* 28(1): 209-234.

Gary Solon & Steven J. Haider & Jeffrey M. Wooldridge, 2015. "What Are We Weighting For?," *Journal of Human Resources*, 50(2), pages 301-316.

Stevenson, Betsey and Wolfers, Justin. "Six Ways to Separate Lies from Statistics" *Bloomberg*, May 2013.

II. Review of Linear Models and Randomized Controlled Trials

Wooldridge, Chapters 2 – 4.
Cameron and Trivedi, Chapter 3.

Deaton, Angus and Nancy Cartwright. 2018. "Understanding and Misunderstanding Randomized Controlled Trials." *Social Science & Medicine*, 210: 2-21.

III. Research Design in Microeconomics and Big Data

Angrist, Joshua D. and Jörn-Steffen Pischke. 2010. "The Credibility Revolution in Empirical Economics: How Better Research Design Is Taking the Con out of Econometrics." *Journal of Economic Perspectives* 24(2): 3-30.

Athey, Susan, and Guido W. Imbens. 2017. "The State of Applied Econometrics: Causality and Policy Evaluation." *Journal of Economic Perspectives*, 31 (2): 3-32.

Belloni, Alexandre, Victor Chernozhukov and Christian Hansen. 2014. "High-Dimensional Methods and Inference on Structural and Treatment Effects." *Journal of Economic Perspectives*, 28(2): 29-50.

Jeff E. Biddle & Daniel S. Hamermesh, 2017. "Theory and Measurement," *History of Political Economy*, 49(Supplement), pages 34-57.

Deaton, Angus. 2010. "Instruments, Randomization, and Learning About Development." *Journal of Economic Literature* 48: 424-455.

Liran Einav, Jonathan Levin. 2014. "The Data Revolution and Economic Analysis," in *Innovation Policy and the Economy, Volume 14*, Lerner and Stern. Chicago: University of Chicago Press.

Heffetz, Ori and Katrina Ligett. 2014. "Privacy and Data-Based Research." *Journal of Economic Perspectives*, 28(2): 75-98.

Keane, Michael P. 2010. "A Structural Perspective on the Experimentalist School." *Journal of Economic Perspectives* 24(2): 47-58.

Leamer, Edward E. 2010. "Tantalus on the Road to Asymptopia." *Journal of Economic Perspectives* 24(2): 31-46.

Manski, Charles F. 2011. "Policy Analysis with Incredible Certitude" *Economic Journal*, Royal Economic Society, vol. 121(554), pages F261-F289, 08.

Mullainathan, Sendhil, and Jann Spiess. 2017. "Machine Learning: An Applied Econometric Approach." *Journal of Economic Perspectives*, 31 (2): 87-106.

Nickerson, David W. and Todd Rogers. 2014. "Political Campaigns and Big Data." *Journal of Economic Perspectives*, 28(2): 51-74.

Nevo, Aviv and Michael D. Whinston. 2010. "Taking the Dogma out of Econometrics: Structural Modeling and Credible Inference." *Journal of Economic Perspectives* 24(2): 69-82.

Panahans, Matthew T. & Singleton, John D. 2017. "The Empirical Economist's Toolkit: From Models to Methods," *History of Political Economy*, 49(Supplement), pages 127-157.

Powell, James L. 2017. "Identification and Asymptotic Approximations: Three Examples of Progress in Econometric Theory." *Journal of Economic Perspectives*, 31 (2): 107-24.

Ruhm, Christopher J. 2018. "Shackling the Identification Police?" NBER Working Paper 25320.

Sims, Christopher A. 2010. "But Economics Is Not an Experimental Science." *Journal of Economic Perspectives* 24(2): 59-68.

Stock, James H. 2010. "The Other Transformation in Econometric Practice: Robust Tools for Inference." *Journal of Economic Perspectives* 24(2): 83-94.

Varian, Hal R.. 2014. "Big Data: New Tricks for Econometrics." *Journal of Economic Perspectives*, 28(2): 3-28.

IV. Panel Data: Fixed and Random Effects

Cameron and Trivedi, Chapter 8 – 9.
Wooldridge Chapter 10.

Angrist, Joshua and Alan Krueger. 1999. "Empirical Strategies in Labor Economics," Chapter 23 in *Handbook of Labor Economics* (Vo. 3), ed. Orley Ashenfelter and David Card. Elsevier, 1278-1329.

Ashenfelter, Orley and Alan Krueger, "Estimates of the Economic Return to Schooling from a New Sample of Twins," *American Economic Review* 1994 84(5) 1157-1174 (J).

Hanushek, Eric A. and Steven G. Rivkin. 2010. "Generalizations about Using Value-Added Measures of Teacher Quality." *American Economic Review* 100(2) 267-271.

Ishii, Jun and Steven G. Rivkin. 2009. "Impediments to the Estimation of Teacher Value Added." *Education Finance and Policy*. 4(4) 520-536.

Rivkin, Steven G., Eric A. Hanushek, and John Kain. 2005. "Teachers, Schools, and Academic Achievement." *Econometrica* 73(2) 417-458.

V. Difference-in-Differences Estimation

Abadie, Alberto and Javier Gardeazabal. 2003. "The Economic Costs of Conflict: A Case Study of the Basque Country." *American Economic Review* 93(1): 113-132.

Abadie, Alberto, Susan Athey, Guido W. Imbens, Jeffrey Wooldridge. 2017. "When Should You Adjust Standard Errors for Clustering?" NBER Working Paper 24003.

Acemoglu, D., and J. Angrist. 2001. "Consequences of Employment Protection: The Case of the Americans with Disabilities Act." *Journal of Political Economy*. 109(5).

Angrist, Joshua and Alan Krueger. 1999. "Empirical Strategies in Labor Economics," Chapter 23 in *Handbook of Labor Economics* (Vo. 3), ed. Orley Ashenfelter and David Card. Elsevier, 1278-1329.

Bertrand, M., E. Duflo, and S. Mullainathan. 2004. "How Much Should We Trust Difference in Difference Estimates?" *Quarterly Journal of Economics* 119(1): 249-276.

Callaway, Brantly and Pedro H.C. Sant'Anna. 2018. "Difference-in-Differences with Multiple Time Periods and an Application on the Minimum Wage and Employment." SSRN Working Paper.

Card, David and Daniel Sullivan. 1988. "Measuring the Effect of Subsidized Training Programs on Movements in and out of Employment." *Econometrica* 56:497-530.

Clarke, Damian and Kathya Tapia Schythe. 2020. Implementing the Panel Event Study. IZA Working Paper # 13524.

Freyaldenhoven, Simon, Christian Hansen, and Jesse M. Shapiro. 2019. "Pre-event Trends in the Panel Event-Study Design." *American Economic Review*, 109 (9): 3307-38.

Goodman-Bacon, Andrew. 2018. "Difference-in-Differences with Variation in Treatment Timing." NBER Working Paper 25018.

Kloeck, T. 1981. "OLS Estimation in a Model Where a Microvariable is Explained by Aggregate Variables on Micro Units." *Econometrica* 49: 205-207.

Meyer, B. "Natural and quasi-experiments in Economics." 1995. *Journal of Business and Economic Statistics*. 12: 151-161.

Meyer, B.D. W.K. Viscusi, and D.L. Durbin. 1995. "Worker's Compensation and Injury Duration: Evidence from a Natural Experiment." *American Economic Review*. 85(3): 322-339.

Moulton, B.R. 1990. "An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units." *Review of Economics and Statistics* 72: 334-338.

Tyler, J.H., R.J. Murnane, and J.B. Willett. 2000. "Estimating the Labor Market Signaling Value of the GED." *Quarterly Journal of Economics*. 115(2): 431-68.

Wing, Coady, Kosali Simon, Ricardo A. Bello-Gomez. 2018. Designing Difference in Difference Studies: Best Practices for Public Health Policy Research. *Annual Review of Public Health* 39:1, 453-469.

Wooldridge, J. 2005. "Cluster Sample Methods in Applied Econometrics," *American Economic Review Papers and Proceedings* 93(2): 133-138.

VI. Treatment Effects, Instrumental Variables and Two-Stage Least Squares

Cameron and Trivedi, Chapter 6.

Wooldridge, Chapters 5 – 6.

Angrist, J.D. 1990. "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records." *American Economic Review*. 80: 313-336.

Angrist, J.D. "Treatment Effect Heterogeneity in Theory and Practice." 2004. *The Economic Journal*. 114: C52-C83.

Angrist, J.D. and W.N. Evans. 1998. "Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size." *American Economic Review*. 88: 450-477.

Angrist, J.D., G.W. Imbens, and D.B. Rubin. 1996. "Identification of Causal Effects Using Instrumental Variables." *Journal of the American Statistical Association*, 91: 444-455.

Angrist Joshua and Alan Krueger. 1991. "Does Compulsory School Attendance Affect Schooling and Earnings?" *Quarterly Journal of Economics* 106: 979-1014.

Angrist, Joshua and Alan Krueger. 1999. "Empirical Strategies in Labor Economics," Chapter 23 in *Handbook of Labor Economics* (Vo. 3), ed. Orley Ashenfelter and David Card. Elsevier, 1278-1329.

Blundell, Richard and Monica Costa Dias. 2009. "Alternative Approaches to Evaluation in Empirical Microeconomics." *Journal of Human Resources* 44(3) 565-640.

Bound, J., D.A. Jaeger, and R.M. Baker. 1995. "Problems with Instrumental Variables Estimation When the Correlation Between Instruments and the Endogenous Explanatory Variable is Weak." *Journal of the American Statistical Association*, 90: 443-450.

Caliendo, Marco and Sabine Kopeinig. 2006. "Some Practical Guidance for the Implementation of Propensity Score Matching." *Journal of Economic Surveys* 22(1): 31-72.

Ginther, D.K. 2000, "Alternative Estimates of the Effect of Schooling on Earnings," *The Review of Economics and Statistics* 82:1, 103-116.

Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift. 2020. "Bartik Instruments: What, When, Why, and How." *American Economic Review*, 110 (8): 2586-2624.

Imbens, Guido W. 2009. "Better LATE Than Nothing: Some Comments on Deaton (2009) and Heckman and Urzua (2009)." *Journal of Economic Literature*. XLVIII (2): 399-423.

Lee, David S. Justin McCrary, Marcelo J. Moreira, and Jack Porter. 2020. "Valid t-ratio Inference for IV". airXiv working paper 2010.05058v1.

Manski, C. 1989. "Anatomy of the Selection Problem." *Journal of Human Resources* 24(3): 343-360.

Manski, C. 1995. *Identification Problems in the Social Sciences*. Chapter 2. Cambridge: Harvard University Press.

VII. Regression Discontinuity

Card, David, Carlos Dobkin and Nicole Maestas." 2008. The Impact of Nearly Universal Insurance Coverage on Health Care: Evidence from Medicare." *American Economic Review* 98, 5 (December 2008): 2242–58.

Chay, K.P., P. McEwan, and M. Urquiola. 2005. "The Central Role of Noise in Evaluating Interventions that Use Test Scores to Rank Schools." *American Economic Review* 95(4): 1237-1258.

DiNardo, J., and D.S. Lee. 2004. "Economic Impacts of New Unionization on Private Sector Employers: 1984-2001." *Quarterly Journal of Economics* 119(4): 1328-1441.

Heggeness, Misty, Ginther, Donna K., Larenas, Maria I. and Carter-Johnson, Frances. 2018. The Impact of Postdoctoral Fellowships on a Future Independent Career in Federally Funded Biomedical Research. NBER Working Paper 24508.

Imbens G.W. and T. Lemieux. 2008. "Regression Discontinuity Design: A Guide to Practice," *Journal of Econometrics*. 142: 615-635.

Lee, D.S. and Thomas Lemieux. 2010. "Regression Discontinuity Designs in Economics." *Journal of Economic Literature*. XLVIII (2): 281-355.

Oreopoulos, Philip. 2006. "Estimating Average and Local Average Treatment Effects of Education When Compulsory Schooling Laws Really Matter" *American Economic Review*, 91(1): 152-175.

Van der Klaauw, W. 2002. "Estimating the Effect of Financial Aid Offers on College Enrollment: A Regression Discontinuity Approach." *International Economic Review* 43(4): 1249-87.

VIII. Discrete Dependent Variables

Cameron and Trivedi Chapters 14 & 17.

Wooldridge Chapter 15 (Discrete Data), Chapter 19 (Count Data).

Ai, C., Norton, E. 2003. Interaction terms logit and probit models. *Economics Letters* 80: 123- 129.

Ginther, D. "Does Invention Lead to Academic Entrepreneurship? 2016. University of Kansas Working Paper.

Kalist, D.E. and N.A. Molinari. 2006. "Is the Marginal Child More Likely to be Murdered? An Examination of State Abortion Ratios and Infant Homicide." *Journal of Human Resources* 41(3): 611-630.

Moffitt, Robert A. "New Developments in Econometric Methods for Labor Market Analysis," Chapter 24 in *Handbook of Labor Economics* (Vo. 3), ed. Orley Ashenfelter and David Card Elsevier, 1999, 1278-1329.

Norton, E.C. 2012. "Log Odds and Ends." NBER Working Paper #18252.

Puhani, P. 2012. The treatment effect, the cross difference, and the interaction term in nonlinear "difference-in-differences" models. *Economics Letters* 115: 85-87.

IX. Truncated and Censored Data, Sample Selection

Cameron and Trivedi, Chapter 16.
Wooldridge Chapter 16-17.

Vella, Francis. 1998. "Estimating Models with Sample Selection Bias: A Survey." *Journal of Human Resources* 33(1):

Moffitt, Robert A. "New Developments in Econometric Methods for Labor Market Analysis," Chapter 24 in *Handbook of Labor Economics* (Vo. 3), ed. Orley Ashenfelter and David Card Elsevier, 1999, 1278-1329.

X. Duration Models

Wooldridge Chapter 20.

Meyer, B. "Unemployment Insurance and Unemployment Spells." 1990. *Econometrica* 58: 757-782.

Ginther, D.K. and K.J. Hayes. 2003. "Gender Differences in Salary and Promotion for Faculty in the Humanities" *Journal of Human Resources* 2003. 38:1, 34-73.