GRA 6845 – Syllabus

In the reading list below, required readings are marked with a star (**); recommended readings are marked with (*); [S] are intended for student presentations; and those with [E] are for exercises.

Lecture 1: Introduction

** Angrist, J.D. and Pischke, J.S., 2008. *Mostly harmless econometrics: An empiricist's companion*. Princeton university press. Chapter 2. https://www-dawsonera-com.ezproxy.library.bi.no/abstract/9781400829828

* Athey, S. 2017. Beyond prediction: Using big data for policy problems. *Science*, *355*(6324), 483-485.

* Ashworth, S., Berry, C.R. and De Mesquita, E.B., 2015. All Else Equal in Theory and Data (Big or Small). *PS: Political Science & Politics*, *48*(01), 89-94.

* Einav, L., and Levin, J. 2014. Economics in the age of big data. *Science*, *346*(6210), 1243089.

** Imbens, G.W. and Rubin, D.B. 2015 *Causal Inference for Statistics, Social, and Biomedical Sciences: An Introduction*. Chapter 1-2.

** Shiffrin, R.M., 2016. Drawing causal inference from Big Data. *Proceedings of the National Academy of Sciences*, *113*(27), 7308-7309.

** Titiunik, R., 2015. Can big data solve the fundamental problem of causal inference? *PS: Political Science & Politics*, *48*(01), 75-79.

* Varian, H R. 2016. Causal inference in economics and marketing *Proceedings of the National Academy of Sciences*, *113*(27), 7310-7315.

Lecture 2 and 3: Experimental design and analysis

* Angrist, J.D. and Pischke, J.S., 2008. *Mostly harmless econometrics: An empiricist's companion*. Princeton university press. Chapter 3. https://www-dawsonera-com.ezproxy.library.bi.no/abstract/9781400829828

[S.2] Dale, S. B., & Krueger, A. B. 2014. Estimating the effects of college characteristics over the career using administrative earnings data. *Journal of Human Resources*, *49*(2), 323-358

* Deaton, A. and Cartwright, N., 2018. *Understanding and Misunderstanding Randomized Controlled Trials Social Science & Medicine*, *210*, 2-21.

[S.3] Falch, T., Nyhus, O. H., and Strøm, B. 2014. Causal effects of mathematics. *Labour Economics*, *31*, 174-187

** Gerber, A.S. and Green, D.P., 2012. *Field experiments: Design, analysis, and interpretation*. WW Norton. Chapter 1-4.

[S.2] Gerber, A. S., Green, D. P., and Larimer, C. W. 2008. Social pressure and voter turnout: Evidence from a large-scale field experiment. *American Political Science Review*, *102*(1), 33-48.

** Levitt, S.D. and List, J.A., 2009. Field experiments in economics: the past, the present, and the future. *European Economic Review*, *53*(1), 1-18.

[S.3] Lewis, R.A. and Reiley, D.H., 2014. Online ads and offline sales: measuring the effect of retail advertising via a controlled experiment on Yahoo! *Quantitative Marketing and Economics*, *12*(3), 235-266.

Lecture 4 and 5: Noncompliance

* Angrist, J. 1990. Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records. *The American Economic Review, 80*(3), 313-336.

* Angrist, J.D. and Pischke, J.S., 2008. *Mostly harmless econometrics: An empiricist's companion*. Princeton university press. Chapter 4.

[S.5] Banerjee, A., Duflo, E., Glennerster, R., and Kinnan, C. 2015. The miracle of microfinance? Evidence from a randomized evaluation. *American Economic Journal: Applied Economics*, *7*(1), 22-53.

** Gerber, A.S. and Green, D.P., 2012. *Field experiments: Design, analysis, and interpretation*. WW Norton. Chapter 5-6.

* Imbens, G. W. 2010. Better LATE than nothing: Some comments on Deaton (2009) and Heckman and Urzua (2009). *Journal of Economic Literature*, *48*(2), 399-423.

[S.5] Ketel, N., Leuven, E., Oosterbeek, H., and van der Klaauw, B. 2016. The Returns to Medical School: Evidence from Admission Lotteries. *American Economic Journal: Applied Economics*, *8*(2), 225-254.

[S.4] Kling, J. R., Liebman, J. B., and Katz, L. F. 2007. Experimental analysis of neighborhood effects. *Econometrica*, *75*(1), 83-119.

[S.4] Gonzalez-Navarro, M., and Quintana-Domeque, C. 2016. Paving streets for the poor: Experimental analysis of infrastructure effects. *Review of Economics and Statistics*, *98*(2), 254-267.

Lecture 6: Treatment effect heterogeneity

[S.6] Blake, T., Nosko, C., and Tadelis, S. 2015. Consumer heterogeneity and paid search effectiveness: A large-scale field experiment. *Econometrica*, *83*(1), 155-174

* Cools, S., Fiva, J. H., and Kirkebøen, L. J. (2015). Causal effects of paternity leave on children and parents. *The Scandinavian Journal of Economics*, *117*(3), 801-828.

** Gerber, A.S. and Green, D.P., 2012. *Field experiments: Design, analysis, and interpretation*. WW Norton. Chapter 9.

[S.6] Levitt, S.D., List, J.A., Neckermann, S. and Nelson, D., 2016. Quantity discounts on a virtual good: The results of a massive pricing experiment at King Digital Entertainment. *Proceedings of the National Academy of Sciences*, *113*(27), 7323-7328.

* Taddy, M. 2019. Business Data Science: Combining Machine Learning and Economics to Optimize, Automate, and Accelerate Business Decisions. MGraw-Hill Education. Chapter 3.

Lecture 7: False positives, p-hacking and publication bias

* Brodeur, A., Cook, N., & Heyes, A. G. (2019). Methods matter: P-hacking and causal inference in economics, unpublished manuscript.

* Brodeur, A., Lé, M., Sangnier, M. and Zylberberg, Y., 2016. Star wars: The empirics strike back. *American Economic Journal: Applied Economics*, *8*(1), 1-32.

* Camerer, C.F., Dreber, A., Forsell, E., Ho, T.H., Huber, J., Johannesson, M., Kirchler, M., Almenberg, J., Altmejd, A., Chan, T. and Heikensten, E., 2016. Evaluating replicability of laboratory experiments in economics. *Science*, *351*(6280), 1433-1436.

[S.7] Fowler, A. and Montagnes, B.P., 2015. College football, elections, and false-positive results in observational research. *Proceedings of the National Academy of Sciences*, *112*(45), 13800-13804.

* Fowler, A. and Montagnes, B.P., 2015. Reply to Healy et al.: Value of ex ante predictions and independent tests for assessing false-positive results. *Proceedings of the National Academy of Sciences*, *112*(48), E6592-E6592.

** Gelman, A. and Loken, E., 2013. The garden of forking paths: Why multiple comparisons can be a problem, even when there is no "fishing expedition" or "p-hacking" and the research hypothesis was posited ahead of time. *Department of Statistics, Columbia University*.

* Gerber, Alan S., and Neil Malhotra. 2008. "Do Statistical Reporting Standards Affect What Is Published? Publication Bias in Two Leading Political Science Journals." Quarterly Journal of Political Science 3: 313-26.

[S.7] Healy, A.J., Malhotra, N. and Mo, C.H., 2010. Irrelevant events affect voters' evaluations of government performance. *Proceedings of the National Academy of Sciences*, *107*(29), 12804-12809.

* Healy, A., Malhotra, N. and Mo, C.H., 2015. Determining false-positives requires considering the totality of evidence. *Proceedings of the National Academy of Sciences*, *112*(48), E6591-E6591.

** Simmons, J.P., Nelson, L.D. and Simonsohn, U., 2011. False-positive psychology undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological science*, 22(11), 1359-1366.

* Tong, C. 2019. Statistical Inference Enables Bad Science; Statistical Thinking Enables Good Science. *The American Statistician*, *73*(sup1), 246-261.

Lecture 8: Regression discontinuity designs

[S.8] Cohen, P., Hahn, R., Hall, J., Levitt, S. and Metcalfe, R., 2016. *Using Big Data to Estimate Consumer Surplus: The Case of Uber* (No. w22627). National Bureau of Economic Research.

* Dell, M., and Querubin, P. 2017. Nation building through foreign intervention: Evidence from discontinuities in military strategies. *The Quarterly Journal of Economics*, *133*(2), 701-764.

* Fiva, J. H. and Røhr, H. L. 2018. Climbing the ranks: Incumbency effects in party-list systems. *European Economic Review* 101, 142-156.

[S.8] Hoekstra, Mark, Steven L. Puller, and Jeremy West. 2017. "Cash for Corollas: When Stimulus Reduces Spending." *American Economic Journal: Applied Economics*, 9(3): 1-35.

** Lee, D.S. and Lemieux, T., 2010. Regression discontinuity designs in economics. *Journal of economic literature*, *48*(2), 281-355.

Lecture 9: Supplementary analysis

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

* Egger, P. and Koethenbuerger, M., 2010. Government spending and legislative organization: Quasi-experimental evidence from Germany. *American Economic Journal: Applied Economics*, *2*(4), 200-212.

** Eggers, A.C., Freier, R., Grembi, V. and Nannicini, T., 2018. Regression discontinuity designs based on population thresholds: Pitfalls and solutions. *American Journal of Political Science*, 62 (1), 210-229.

[S.9] Folke, O., and Rickne, J. 2019. All the single ladies: Job promotions and the durability of marriage, American Economic Journal: Applied Economics, forthcoming.

[S.9] Hyytinen, A., Meriläinen, J., Saarimaa, T., Toivanen, O. and Tukiainen, J., 2018. When Does Regression Discontinuity Design Work? Evidence from Random Election Outcomes. *Quantitative Economics,* 9(2), 1019-1051.

Lecture 10-11: High-dimensional data: Measurement, prediction, and causal inference

* Dietrich, B. J., Enos, R. D., and Sen, M. 2019. Emotional arousal predicts voting on the US Supreme Court. *Political Analysis*, *27*(2), 237-243.

** Gentzkow, M., Kelly, B. T., and Taddy, M. 2019. Text as Data, *Journal of Economic Literature*, 57(3), 535-574.

[S.11] Gentzkow, M., Shapiro, J. M., and Taddy, M. 2019. Measuring Group Differences in High-Dimensional Choices: Method and Application to Congressional Speech. *Econometrica*, 87(4), 1307-1340.

* Ginsberg, J., Mohebbi, M. H., Patel, R. S., Brammer, L., Smolinski, M. S., and Brilliant, L. 2009. Detecting influenza epidemics using search engine query data. *Nature*, *457*(7232), 1012.

[S.11] Henderson, J. V., Storeygard, A., and Weil, D. N. 2012. Measuring economic growth from outer space. *The American Economic Review*, *102*(2), 994-1028.

[S.10] Kang, J.S., Kuznetsova, P., Luca, M. and Choi, Y., 2013. Where Not to Eat? Improving Public Policy by Predicting Hygiene Inspections Using Online Reviews. In *EMNLP* (1443-1448).

** Kleinberg, J., Ludwig, J., Mullainathan, S., and Obermeyer, Z. 2015. Prediction policy problems. *American Economic Review*, *105*(5), 491-95.

* Lazer, D., Kennedy, R., King, G., and Vespignani, A. 2014. The parable of Google Flu: traps in big data analysis. *Science*, *343*(6176), 1203-1205.

[S.10] Loughran, T., and McDonald, B. 2011. When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *The Journal of Finance*, *66*(1), 35-65.

* Taddy, M. 2019. Business Data Science: Combining Machine Learning and Economics to Optimize, Automate, and Accelerate Business Decisions. MGraw-Hill Education.

** Torres, M. 2018. Give me the full picture: Using computer vision to understand visual frames and political communication. Working paper.

Assignment 1

[E] Gelman, A., Pasarica, C., and Dodhia, R. 2002. Let's Practice What We Preach: Turning Tables into Graphs. *The American Statistician,56*(2), 121-130.

[E] Healy, K. 2018. *Data visualization: a practical introduction*. Princeton University Press.

[E] Schwabish, J. A. 2014. An economist's guide to visualizing data. *The Journal of Economic Perspectives*, *28*(1), 209-233.

[E] Schwabish, J. A. 2017. Better data communication, NBER summer institute presentation https://vimeo.com/230757062

Assignment 2

[E] Angrist, J., and Evans, W. 1998. Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size. *The American Economic Review, 88*(3), 450-477.

Assignment 3

[E] Bertrand, M., and Mullainathan, S. 2004. Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination. *The American Economic Review, 94*(4), 991-1013.

Assignment 4

[E] Lee, D. S. 2008. Randomized experiments from non-random selection in US House elections. *Journal of Econometrics*, *142*(2), 675-697.

Assignment 5

[E] Rooduijn, M., and Pauwels, T. 2011. Measuring populism: Comparing two methods of content analysis. *West European Politics*, *34*(6), 1272-1283.