

experimental methods

PSCI 7108.001

FALL 2016

MONDAYS, 11 A.M. – 1:30 P.M.

KETCHUM 1B31

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OFFICE HOURS: WED, 11 A.M. - 12 P.M., 1 - 2 P.M.

In this course, you will learn how to design, implement, and analyze experiments in political science. The course is loosely organized into three sections. We will start by considering experimental design – discussing the key virtues of experimental research and then how to best achieve strong experiments in practice. The second unit focuses on the varieties of experiments common to political science – including laboratory experiments, natural experiments, field experiments, and survey experiments. We will consider the characteristics of each, and along the way, address some of the challenges associated with the implementation of experiments, such as attrition, effective randomization, and spillover effects. The third section is devoted to the empirical analysis of experimental results. We will cover the analytical tools common to experimental research and address issues of mediation as well as heterogeneous treatment effects.

The class will be run as a workshop where each student will design and implement an experiment that will be conducted on Amazon's Mechanical Turk. During the first weeks of class, you will design an experiment (related to your own particular substantive interests) and we use parts of each class session giving feedback on how to improve that design (against the backdrop of the particular topic we are covering). The second unit on the implementation of experiments will overlap with the implementation of your experiments – as you secure approval from the university's Institutional Review Board and design your experimental modules in Qualtrics. If all goes well, you should hopefully have your experimental data in hand in November to apply the lessons from the third unit on experimental analysis.

readings for the course

Journal articles are accessible through the library's website, while book chapters will be accessible through the course website.

REQUIRED TEXTS:

Morton, Rebecca B., and Kenneth C. Williams. 2010. *Experimental Political Science and the Study of Causality: From Nature to the Lab*. Cambridge: Cambridge University Press.

Mutz, Diana C. 2011. *Population-Based Survey Experiments*. Princeton: Princeton University Press.

RECOMMENDED TEXTS:

Dunning, Thad. 2012. *Natural Experiments in the Social Sciences*. Cambridge: Cambridge University Press. (also available as an e-book via the library's website)

Field, Andy, and Graham Hole. 2003. *How to Design and Report Experiments*. Thousand Oaks, CA: Sage Publications.

Gerber, Alan S., and Donald P. Green. 2012. *Field Experiments: Design, Analysis, and Interpretation*. New York: W. W. Norton & Company.

D2L is your friend

This syllabus, assignments, data sets, and other exciting material can be accessed on the class website on learn.colorado.edu.

requirements

HOMEWORK AND PARTICIPATION (60% of your final grade)

You are expected to attend and actively engage in class.

Most weeks, you will be responsible for a homework assignment designed to help you practice and apply the skills learned in class. Some of these assignments will be written memos while others will be designed as problem sets. While you are welcome to consult with your classmates on the homework assignments, the final work that you turn in must be your own. Late homework assignments will not be accepted.

RESEARCH PAPER (40% of your final grade)

You will also develop a research paper based on the experiment you develop, design, and implement over the course of the semester. In style, this paper should resemble the journal articles you have read in your classes. The research paper will be due the last week of the class. Additional guidelines will be detailed in a separate handout.

special accommodations

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs may be addressed. You can contact the Disability Services office for more information at www.colorado.edu/disabilityservices.

some important comments on academic integrity

- Plagiarism and other academic dishonesty will not be tolerated. If you are not familiar with the rules of citing sources in written work or what constitutes plagiarism, you should contact me or refer to the University Honor Code at honorcode.colorado.edu. Academic dishonesty will result in an F in the course and referral to the Honor Court for additional non-academic sanctions.
- All papers are expected to be original work, not previously or simultaneously handed in for credit in another course (unless prior approval of all instructors involved is obtained).

PSCI 7108 course schedule

1. why use experiments?

MONDAY, AUGUST 22

The history of experimental research in political science, the value of experimentation

- Morton, Rebecca B., and Kenneth C. Williams. 2010. *Experimental Political Science and the Study of Causality: From Nature to the Lab*. Cambridge: Cambridge University Press, chapters 1 and 2.
- Druckman, James N., Donald P. Green, James H. Kuklinski and Arthur Lupia. 2006. "The Growth and Development of Experimental Research in Political Science." *American Political Science Review* 100(4): 627-635.
- recommended: Hyde, Susan D. 2015. "Experiments in International Relations: Lab, Survey, and Field." *Annual Review of Political Science* 18:403-424.

2. causal inference

MONDAY, AUGUST 29

The importance of causality, potential outcomes framework, randomization

- Angrist, Joshua D., and Jörn-Steffen Pischke. 2009. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton: Princeton University Press. Chapter 2.
- Keele, Luke. 2015. "The Statistics of Causal Inference: A View from Political Methodology." *Political Analysis* 23: 313-335.
- *At least one of the following and ideally two or more:*
 - Dunning, Thad. 2012. *Natural Experiments in the Social Sciences*. Cambridge: Cambridge University Press. Chapter 5.
 - Morton, Rebecca B., and Kenneth C. Williams. 2010. *Experimental Political Science and the Study of Causality: From Nature to the Lab*. Cambridge: Cambridge University Press. Chapter 3.
 - Gerber, Alan S., and Donald P. Green. 2012. *Field Experiments: Design, Analysis, and Interpretation*. New York: W. W. Norton & Company. Chapter 2.
 - Holland, Paul W. 1986. "Statistics and Causal Inference." *Journal of the American Statistical Association* 81: 945-960. (Skim the comments and rejoinder that follow.)

3. internal and external validity

MONDAY, SEPTEMBER 12

Understanding what it means to do valid research, designing treatments and measures

- Shadish, William R., Thomas D. Cook, and Donald T. Campbell. 2002. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston: Houghton Mifflin. Chapters 2 and 3.
 - or as an alternative to Shadish, Cook, and Campbell: Morton and Williams, chapter 7.
- Mutz, Diana C. 2011. *Population-Based Survey Experiments*. Princeton: Princeton University Press. Chapters 2, 3, 4, 5, and 8.

4. conducting experiments

MONDAY, SEPTEMBER 19

More on manipulations, Identifying experimental participants, concerns about convenience samples

- Morton and Williams, chapters 8-10.
- Druckman, James N., and Cindy D. Kam. 2011. "Students as Experimental Participants: A Defense of the 'Narrow Data Base'." In James Druckman, Donald Green, James Kuklinski, and Arthur Lupia, eds., *Cambridge Handbook of Experimental Political Science* New York: Cambridge University Press.
- Berinsky, Adam J., Gregory A. Huber, and Gabriel S. Lenz. 2012. "Evaluating Online Labor Markets for Experimental Research: Amazon.com's Mechanical Turk." *Political Analysis* 20(3):351-368.
- Clifford, Scott, and Jennifer Jerit. 2014. "Is There a Cost to Convenience? An Experimental Comparison of Data Quality in Laboratory and Online Studies." *Journal of Experimental Political Science* 1:120-131.
- Mullinix, Kevin J., Thomas J. Leeper, James N. Druckman, and Jeremy Freese. 2015. "The Generalizability of Survey Experiments." *Journal of Experimental Political Science* 2:109-138.
- *recommended:* Henrich, Joseph, Steven J. Heine, and Ara Norenzayan. 2010. "The Weirdest People in the World?" *Behavioral and Brain Sciences* 33:61-135.

5. implementing experimental research

MONDAY, SEPTEMBER 26

Sample size calculations, block randomization, deception, ethics in experimentation

- Morton and Williams, chapters 11-13.
- Dickson, Eric S. 2011. "Economics versus Psychology Experiments: Stylization, Incentives, and Deception." In James N. Druckman, Donald P. Green, James H. Kuklinski, and Arthur Lupia, eds., *Cambridge Handbook of Experimental Political Science* New York: Cambridge University Press.
- Gerber, Alan S., and Donald P. Green. 2012. *Field Experiments: Design, Analysis, and Interpretation*. New York: W. W. Norton & Company. Chapters 3 and 4.

6. laboratory experiments (and replicability)

MONDAY, OCTOBER 3

The virtues of laboratory experiments, as well as discussions of experimental generalizability and replicability

- Falk, Armin, and James J. Heckman. 2009. "Lab Experiments Are a Major Source of Knowledge in the Social Sciences." *Science* 326:535-538.
- Jerit, Jennifer, Jason Barabas, and Scott Clifford. 2013. "Comparing Contemporaneous Laboratory and Field Experiments on Media Effects." *Public Opinion Quarterly* 77: 256-282.
- Coppock, Alexander, and Donald P. Green. 2015. "Assessing the Correspondence between Experimental Results Obtained in the Lab and Field: A Review of Recent Social Science Research." *Political Science Research and Methods* 3:113-131.
- Huber, Gregory A., and John S. Lapinski. 2006. "The Race Card Revisited: Assessing Racial Priming in Policy Contests." *American Journal of Political Science* 50(2):421-440.
- Mendelberg, Tali. 2008. "Racial Priming Revived." *Perspectives on Politics* 6:109-123.

- Huber, Gregory A., and John S. Lapinski. 2008. "Testing the Implicit-Explicit Model of Racialized Political Communication." *Perspectives on Politics* 6:125-134.
- Mendelberg, Tali. 2008. "Racial Priming: Issues in Research Design and Interpretation." *Perspectives on Politics* 6:135.

7. natural experiments (and randomization)

MONDAY, OCTOBER 10

Identifying natural experiments, as well as discussion of the consequences of imperfect randomization

- Dunning, Thad. 2012. *Natural Experiments in the Social Sciences*. Cambridge: Cambridge University Press. Chapters 1 and 2.
- Sekhon, Jasjeet S., and Rocio Titiunik. 2012. "When Natural Experiments Are Neither Natural Nor Experiments." *American Political Science Review* 106:35-57.
- Morton, Rebecca B., and Kenneth C. Williams. 2010. *Experimental Political Science and the Study of Causality: From Nature to the Lab*. Cambridge: Cambridge University Press. Chapters 4 and 5.

8. field experiments (and noncompliance)

MONDAY, OCTOBER 17

Why everyone loves field experiments, how to do them, as well as how to deal with noncompliance

- Green, Donald P., and Alan S. Gerber. 2003. "The Underprovision of Experiments in Political Science." *The Annals of the American Academy of Political and Social Science* 589:94-112.
- Grose, Christian R. 2014. "Field Experimental Work on Political Institutions." *Annual Review of Political Science* 17:355-370.
- *as an alternative or complement to the Grose piece*: Loewen, Peter John, Daniel Rubenson, and Leonard Wantchekon. 2010. "Help Me Help You: Conducting Field Experiments with Political Elites." *The Annals of the American Academy of Political and Social Science* 628:165-175.
- Gerber, Alan S., and Donald P. Green. 2000. "The Effects of Canvassing, Telephone Calls, and Direct Mail on Voter Turnout: A Field Experiment." *American Political Science Review* 94(3):653-63.
- Imai, Kosuke. 2005. "Do Get-Out-the-Vote Calls Reduce Turnout? The Importance of Statistical Methods for Field Experiments." *American Political Science Review* 99(2):283-300.
- *if you have time*: List, John A. 2011. "Why Economists Should Conduct Field Experiments and 14 Tips for Pulling One Off." *Journal of Economic Perspectives* 25:3-16.
- *recommended*: Glennerster, Rachel, and Kudzai Takavarasha. 2013. *Running Randomized Evaluations*. Princeton, NJ: Princeton University Press.

9. survey experiments (and spillover effects)

MONDAY, OCTOBER 24

Survey experiments, list experiments, conjoint analysis, as well as concerns about spillover effects

- Mutz, Diana C. 2011. *Population-Based Survey Experiments*. Princeton: Princeton University Press. Chapter 1.
- Gaines, Brian J., James H. Kuklinski and Paul J. Quirk. 2007. "The Logic of the Survey Experiment Reexamined." *Political Analysis* 15:1-20.

- Barabas, Jason, and Jennifer Jerit. 2010. "Are Survey Experiments Externally Valid?" *American Political Science Review* 104:226-42.
- Hainmueller, Jens, Daniel J. Hopkins, and Teppei Yamamoto. 2014. "Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices via Stated Preference Experiments." *Political Analysis* 22:1-30.
- Rosenfeld, Bryn, Kosuke Imai, and Jacob N. Shapiro. 2016. "An Empirical Validation Study of Popular Survey Methodologies for Sensitive Questions." *American Journal of Political Science* 60: 783-802.
- *recommended*: Kramon, Eric, and Keith R. Weghorst. 2012. "Measuring Sensitive Attitudes in Developing Countries: Lessons from Implementing the List Experiment." *Experimental Political Scientist* 3(2):14-26.

10. analyzing (and reporting) experimental results

MONDAY, OCTOBER 31

Reporting the results of your experiment, manipulation checks, balance tests

- Zaller, John. 2002. "The Statistical Power of Election Studies to Detect Media Exposure Effects in Political Campaigns." *Electoral Studies* 21:297-329.
- Mutz, Diana C. 2011. *Population-Based Survey Experiments*. Princeton: Princeton University Press. Chapter 7.
- Gerber, Alan, Kevin Arceneaux, Cheryl Boudreau, Conor Dowling, Sunshine Hillygus, Thomas Palfrey, Daniel R. Biggers, and David J. Hendry. 2014. "Reporting Guidelines for Experimental Research: A Report from the Experimental Research Section Standards Committee." *Journal of Experimental Political Science* 1:81-98.
- Diana C. Mutz and Robin Pemantle. 2015. "Standards for Experimental Research: Encouraging a Better Understanding of Experimental Methods." *Journal of Experimental Political Science* 2:192-215.
- Franco, Annie, Neil Malhotra, and Gabor Simonovits. 2015. "Underreporting in Political Science Survey Experiments: Comparing Questionnaires to Published Results." *Political Analysis* 23:306-312.

11. analysis of variance

MONDAY, NOVEMBER 7

Parametric tests and ANOVA

- Field, Andy, and Graham Hole. 2003. *How to Design and Report Experiments*. Thousand Oaks, CA: Sage Publications. Chapter 6.

12. nonparametric models and randomization tests

MONDAY, NOVEMBER 14

Randomization tests and nonparametric tools

- Field, Andy, and Graham Hole. 2003. *How to Design and Report Experiments*. Thousand Oaks, CA: Sage Publications. Chapter 7.
- Keele, Luke, Corrine McConaughy, and Ismail White. 2012. "Strengthening the Experimenter's Toolbox: Statistical Estimation of Internal Validity." *American Journal of Political Science* 56:484-499.

fall break

MONDAY, NOVEMBER 21

13. heterogeneous treatment effects

MONDAY, NOVEMBER 28

Heterogeneous treatment effects, conditional experimental effects

- Green, Donald P., and Alan S. Gerber. 2002. "The Downstream Benefits of Experimentation." *Political Analysis* 10:394-402.
- Gaines, Brian J., and James H. Kuklinski. 2011. "Experimental Estimation of Heterogeneous Treatment Effects Related to Self-Selection." *American Journal of Political Science* 55:724-36.
- Fieldhouse, Edward, David Cutts, Peter John, and Paul Widdop. 2014. "When Context Matters: Assessing Geographical Heterogeneity of Get-Out-The-Vote Treatment Effects Using a Population Based Field Experiment." *Political Behavior* 36:77-97.
- *if time allows*: Imai, Kosuke, and Aaron Strauss. 2011. "Estimation of Heterogeneous Treatment Effects from Randomized Experiments, with Application to the Optimal Planning of the Get-Out-the-Vote Campaign." *Political Analysis* 19:1-19.

14. mediation in experiments

MONDAY, DECEMBER 5

We may end up doing presentations this week instead.

- Bullock, John G., Donald P. Green, and Shang E. Ha. 2010. "Yes, But What's the Mechanism? (Don't Expect an Easy Answer)." *Journal of Personality and Social Psychology* 98(4): 550-58.
- Ludwig, Jens, Jeffrey R. Kling, and Sendhil Mullainathan. 2011. "Mechanism Experiments and Policy Evaluations." *Journal of Economic Perspectives* 25(3):17-38.
- *recommended*: Imai, Kosuke, Dustin Tingley, and Teppei Yamamoto. 2013. "Experimental Designs for Identifying Causal Mechanisms." *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 176: 5-51.