

# PSCI 3075: Applied Political Science Research Methods Fall 2021

<b>Instructor</b>	Brett Bessen
<b>Time</b>	Mon/Wed/Fri, 12:40pm-1:30pm
<b>Room</b>	Muenzinger E432
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<b>Office Hours</b>	Mon/Weds 1:40 - 2:40pm, or by appointment
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## Course Description

This course is designed to introduce research design and methods in political science. We will focus on quantitative methods for presenting data and evaluating social science theories. The first section of the course reviews probability and statistics, discusses research design, and gets students up and running using R. The second section focuses on specifying and interpreting regression models, and the final section introduces selected topics including experiments and text analysis. By the end of the course, students should be able to use publicly available data to produce descriptive statistics, run regression models, and evaluate causal arguments.

The course will emphasize *applying* statistical methods to real-world data. In practice, social science data are often messy, and learning to work with data takes time and patience. We will be using R, an open-source statistical package, to clean and analyze data. While there are similar packages—e.g., Stata or SPSS—R is free, widely-used, and provides a good foundation for other programming languages. Throughout the course, I will provide you with scripts showing you how to implement the methods that we discuss in R. In addition to following these scripts, you are encouraged to try alternative code and to practice consulting online resources.

## Learning Objectives

- Evaluate arguments made with quantitative data
- Develop a testable research question
- Manipulate, visualize, and model data using R
- Communicate results from statistical analyses

## Prerequisites

*PSCI 2075* is a prerequisite for taking this course. In this class, you will apply methods introduced in *PSCI 2075* to develop and test your own research question.

## Assignments

**Research Paper (40%):** Students will develop a research question and test it using quantitative methods. The final product will be a 12 to 20 page research paper in the format of most social science papers (e.g., introduction, literature review, theory, hypotheses, testing of hypotheses, discussion and conclusion). Over the course of the semester, we will work on developing a research question and outlining your research paper. The grade for the research paper is divided as follows:

- *Research Proposal (5%)*: A written proposal of at least two potential research questions.
- *Research Paper Draft (10%)*: A 6+ page draft of your research paper.

- *Final Paper* (25%): A 12 to 20 page paper addressing a testable research question.

**Homework Assignments** (40%): The homework assignments involve applying the methods learned in class and clearly presenting the results in writing. Over the semester, there will be four homework assignments, each worth 10% of the overall homework grade. The homework assignments cover multiple weeks of material and should not be left to the last minute.

**Reading Quizzes** (10%): Throughout the semester, we will have in-class pop-quizzes covering the assigned readings. The reading quizzes will require you to have completed the assigned readings before coming to class.

**Participation** (10%): The participation grade includes a short presentation and actively working on in-class assignments:

- *Topic Presentation* (5%): A 5 to 10 minute presentation introducing the readings and presenting discussion questions. Students are encouraged to meet with me before class to discuss their presentation.
- *In-Class Assignments* (5%): Working on the in-class R labs and participating in group work.

## Due Dates

Assignments are due as a *hard-copy in class* on the day listed below. Assignment must also be *submitted to canvass* before the start of class. I do not require a hard-copy of the final paper.

Assignment	Due
<i>Research Proposal</i>	9/15/21
<i>Homework 1</i>	10/1/21
<i>Homework 2</i>	10/15/21
<i>Homework 3</i>	10/22/21
<i>Research Paper Draft</i>	11/12/21
<i>Homework 4</i>	11/19/21
<i>Research Paper</i>	12/14/21

## Grades

### Grade Scale

Letter grades will be based on the following scale. Note that I will round up grades that are within 0.5 percentage points of the next letter grade. For instance, an 83.6 would be rounded up to an 84 and receive a B in the course.

A	95-100
A-	90-94
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D+	67-69
D	64-66
D-	60-63
F	0-59

## Course Policies

**Class Norms:** In this course we will engage in critical debate—sometimes about contentious topics. Students will engage in respectful dialogue and must not disparage their classmates. I encourage you to practice taking academic criticism as a way to develop your ideas rather than as an attack on your values.

**Attendance:** Class attendance is mandatory, with the exception of university excused absences. Missing more than three classes (without an excuse) will lower your participation grade.

**Late Work:** Assignments are due in class on the day listed on the syllabus. Late assignments will lose 10 percentage points per day; assignments not turned in after 3 days will receive a 0. Late assignments must be turned in to Canvass and to my box in Ketchum 115.

**Office Hours:** My office hours are Mondays and Wednesdays from 1:40 to 2:40 in Ketchum 125. I am happy to meet via Zoom during those hours as well. In the event of a scheduling conflict, please email me at least 24 hours in advance and we meet at another time.

**Email Policy:** Feel free to email me with any questions or comments. I will typically respond within one day during the work week. Please send me a follow up if I don't respond within three business days. My email is [brett.bessen@gmail.com](mailto:brett.bessen@gmail.com).

**Flexibility:** I am happy to work with you to help you succeed in this course. Let me know if extenuating circumstances make it difficult for you to attend class or keep up with the material.

**Academic Accommodations:** If you qualify for academic accommodations, please submit your accommodation letter in a timely fashion. Please check with [Disability Services](#) for more information.

**Academic Honesty:** Plagiarism or cheating will not be tolerated. All assignments must be original work done for this course. Plagiarism will result in a failing grade for the course and referral to the Honor Council for non-academic sanctions. Please contact me or see the [honor code website](#) if you are unsure what constitutes plagiarism.

## Required Texts

Kellstedt, Paul and Guy D. Whitten. The Fundamentals of Political Science Research. 3rd edition. Cambridge University Press, 2018.

Kellstedt, Paul and Guy D. Whitten, An R Companion to The Fundamentals of Political Science Research. Cambridge University Press, 2021.

Wheelan, Charles. Naked Statistics: Stripping the Dread from the Data. WW Norton & Company, 2014.

Wickham, Hadley, and Garrett Grolemund. R for Data Science: Import, Tidy, Transform, Visualize, and Model Data. O'Reilly Media, Inc., 2016. ([Available free online](#))

## Additional Resources

- [CU Computer Labs](#): Computers available on campus
- [Modern Dive](#): Free guide to statistical inference with R
- [Google Scholar](#): Access scientific literature online
- [CU Library Data Services](#): Data consultation and guides to available datasets

## Syllabus Statements

I am committed to cultivating an atmosphere of respectful dialogue and academic honesty. Please see [CU's syllabus statements](#) on disability accommodations, plagiarism, classroom behavior, and religious holidays.

## Course Schedule

### Working with Quantitative Data

#### Week 1: Syllabus and Course Overview

Gelman, 2021 [The Social Sciences are Useless. So Why Study Them?](#)

Fundamentals of Political Science Research (henceforth FPSR), ch. 1 & 2

Philips 2017, Introduction to R (skim)

#### Week 2: Review of R, Probability, and Statistics

Naked Statistics, ch. 1, 2, & 5

Everitt 2008, What are the Chances? Assigning Probabilities

R for Data Science (henceforth R4DS), ch. 4 & 6

#### Week 3: Research Design and Measurement

FPSR, ch. 3-5

Inglehart, Ronald. "How Solid is Mass Support for Democracy—And How Can We Measure It?" *PS: Political Science & Politics* 36.1 (2003): 51-57.

Lee, Taeku. "Between Social Theory and Social Science Practice. Toward a New Approach to the Survey Measurement of 'Race.'" *Measuring Identity: A Guide for Social Scientists* (2009): 113-44.

*Research Proposal due Friday, September 15th*

#### Week 4: Summarizing and Visualizing Data

FPSR, ch. 6

Naked Statistics, ch. 3 - 4

R4DS, ch. 3, Data Visualization

#### Week 5: Datasets and Tidying Data

R4DS, ch. 5, 11.1 - 11.2

Naked Statistics, ch. 7

Herrera, Yoshiko and Devesh Kapur. 2007. "Improving data quality: Actors, Incentives, and Capabilities." *Political Analysis* 15(4): 365-386

## **Week 6: Sampling, Uncertainty, and Statistical Inference**

Naked Statistics, ch. 8 - 9

FPSR, ch. 7 - 8

R Companion to FPSR, ch. 7 - 8

*Assignment 1 due Friday, October 1st*

## **Regression Modeling**

### **Week 7: Running and Interpreting Linear Regression**

Naked Statistics, ch. 11

FPSR, ch. 9 - 10

R Companion to FPSR, ch. 9 - 10

### **Week 8: Regression with Categorical Variables and Interactions**

FPSR, ch. 11, pg. 246 - 258

R Companion to FPSR, ch. 11, pg. 58 - 61

Brambor, Thomas, William Roberts Clark and Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 14: 63-82.

Lindstedt, Catharina, and Daniel Naurin. "Transparency is Not Enough: Making Transparency Effective in Reducing Corruption." *International Political Science Review* 31.3 (2010): 301-322.

*Assignment 2 due Friday, October 15th*

### **Week 9: Diagnostics and Model Checking**

Naked Statistics, ch. 12

FPSR, ch. 11, pg. 259 - 272

R Companion to FPSR, ch. 11, pg. 61 - 65

### **Week 10: Regression with Limited Dependent Variables**

FPSR, ch. 12, pg. 273 - 282

R Companion to FPSR, ch. 12

*Assignment 3 due Friday, October 22nd*

## **Research Papers**

### **Week 11: Writing a Research Paper**

McCloskey, Donald. "Economical Writing." *Economic Inquiry* 23.2 (1985): 187-222.

Wolfinger, Raymond E. "Tips for Writing Papers." *PS: Political Science & Politics* 26.1 (1993): 87-88.

*Recommended:*

Knopf, Jeffrey W. "Doing a Literature Review." *PS: Political Science & Politics* 39.1 (2006): 127-132.

Stimson, James A. "Professional Writing in Political Science: A Highly Opinionated Essay."

## Causal Inference

### Week 12: Experiments

Humphreys, Macartan. [10 Things to Know About Causal Inference](https://egap.org), [egap.org](https://egap.org)

Keele, Luke. "The statistics of causal inference: A view from political methodology." *Political Analysis* 23.3 (2015): 313-335.

*Choose one of the following:*

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

Nyhan, Brendan, and Jason Reifler. "Displacing Misinformation about Events: An Experimental Test of Causal Corrections." *Journal of Experimental Political Science* 2.1 (2015): 81-93.

*Research Paper Draft due Friday November 12th*

### Week 13: Working with Panel Data

FPSR, ch. 12, pgs. 282 - 297

Angrist, Joshua D., and Jörn-Steffen Pischke. "Parallel Worlds: Fixed effects, Differences-in-Differences, and Panel Data." In *Mostly Harmless Econometrics*. Princeton University Press, 2008.

### Week 14: Thanksgiving Break

## Selected Topics

### Week 15: Surveys and Public Opinion

Berinsky, Adam J. "Measuring Public Opinion with Surveys." *Annual Review of Political Science* 20 (2017): 309-329.

Feldman, Stanley. 1995. "Answering Survey Questions: The Measurement and Meaning of Public Opinion." In Milton Lodge and Kathleen McGraw, eds., *Political Judgment: Structure and Process*. Ann Arbor: University of Michigan Press.

Daoust, Jean-François, et al. "How to Survey Citizens' Compliance with COVID-19 Public Health Measures: evidence from three survey experiments." *Journal of Experimental Political Science* (2020): 1-8.

*Assignment 4 due Friday, November 19th*

### Week 16: Text Analysis

Monroe, Burt L., and Philip A. Schrodt. "Introduction to the special issue: The Statistical Analysis of Political Text." *Political Analysis* 16.4 (2008): 351-355.

Siegel, Alex, and Joshua Tucker. "Here's What 29 Million Tweets Can Teach Us about Brexit." *The Washington Post*, WP Company, 18 Apr. 2019.

*Final Paper due Tuesday, December 14th by 11:59 pm*