PSCI-3075: Applied Political Science Research

University of Colorado Boulder

Spring 2019

Time:	Monday, Wednesday, Friday, 1:00-1:50PM
Location:	HUMN 1B90
Instructor:	Dr. Andrew Q. Philips
Office:	KTCH 144
Email:	andrew.philips@colorado.edu
Office hours:	Monday, 2:00-4:30 or by appointment

COURSE DESCRIPTION: This course is designed to introduce you to the types of research design and quantitative methodology used in applied political science research. This course directly builds on the data analysis performed in Quantitative Research Methods (PSCI 2075). In this class we will cover topics such as building theories, hypothesis testing, measurement, and causation. Some of the class will be spent analyzing, understanding and critiquing the research design of actual political science articles. This course will provide an overview of some of the most popular approaches to social science research, such as multivariate regression and experiments, as well as relatively new approaches, such as "text-as-data" and machine learning. Any statistics and data analysis conducted will utilize the free open-source statistical package R.

By the end of this course you should be able to:

- Understand the major approaches to research design in political science.

- Apply what you have learned to produce a written research paper that answers a relevant social science question.

- Be a savvy consumer of data and statistics in the news, media, web, etc.

PREREQUISITES: We will use some R and RStudio in this course, which should be familiar to you from PSCI 2075 (the required prerequisite course). Early in the course we will review R. Of course, for the actual research paper later in the semester, students should use whatever software they feel most comfortable with (e.g., R, Stata, SPSS, Excel).

GRADES: Course grades will be based on the following. Participation and quizzes are worth 10% of the final grade. There will be three tests throughout the semester, the first of which is worth 15%, and the latter two 20%. About halfway through the semester, a research paper outline will be due, which is worth 10%. The paper itself is due at the end of the semester and is worth 25%.

Grade Breakdown

Participation and Quizzes	10%
Exam I	15%
Exam II	20%
Exam III	20%
Research Paper Outline	10%
Original Research Paper	25%

The following scale will be used to turn numerical grades into letter ones. Note that I will round up a letter should your grade fall on the number (but on or above 0.5) between two letters (e.g., 89.5 up to 90 rounds up to an A-). There are no opportunities for extra credit.

Grade Scale

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

Participation: Participation is an integral component of undergraduate courses. Students are expected to come to every class *having already read the assigned readings for that day*, and should be prepared to discuss them. Some of the course material covers difficult topics, so please stop me if you have any questions.

Quizzes: To encourage attendance and ensuring students are completing the required readings, several quizzes will be held throughout the semester.

Exams: There will be three in-class exams held throughout the semester. These are cumulative, but will mostly focus on what we have covered in class recently. I will provide study guides before each exam, and will allocate some class time towards answering questions on the class day before the exam.

Research Paper and Outline: The largest graded portion of the class revolves around a research paper, to be written towards the end of the semester. This will involve choosing an important research question to answer. This paper will be in the format of most social science papers (e.g., introduction, literature review, theory, hypotheses, testing of hypotheses, discussion and conclusion). Throughout the semester, we will craft your research paper using an outline (due about halfway through the semester) and a discussion on appropriate data sources from which to test your empirical expectations. Papers will be due near the end of the semester. We will discuss the research paper and outline more fully in class.

Contact, Office Hours, and TA: My office hours are on Mondays, 2:00-4:30. If there is a schedule conflict, we can also meet by appointment, but you *must email me at least 24 hours in advance*. I encourage you to come by office hours if you need help in the class; this is especially important early in the semester since we build upon what we have learned throughout the course. If you send me an email you can generally expect a response within 24 hours on business days. My email is: andrew.philips@colorado.edu.

While there is no in-class teaching assistant, the Political Science department has an undergraduate Methods Lab Coordinator, Carey Stapleton (carey.stapleton@colorado.edu). He can assist students needing help in the quantitative courses. His office hours are on Tuesday, Wednesday, and Thursday, from 10:00AM-5:00PM, in KTCH 233.

Attendance and Late Policy: Attendance is a key component of succeeding as an undergraduate.

Attendance is mandatory, with the exception of university-excused absences.

Assignments are due on the day listed in the syllabus. Late assignments will be assessed a 10 point penalty per day (i.e., a paper scoring a 95 would receive an 85 if turned in one day late, 75 if two days,...). Assignments not turned in after 3 days will receive a score of zero.

Required Texts: There are two required texts for this course. Any additional readings will be made available to you as needed. I will put all additional readings on the Canvas course website.

- Kellstedt, Paul and Guy D. Whitten. 2018. *The fundamentals of political science research*. Cambridge University Press. 3rd edition. ISBN: 1316642674.

- Pollock III, Philip H. and Barry C. Edwards. 2017. *An R companion to political analysis*. CQ Press. 2nd edition. ISBN: 1506368840.

Note that it is expected to read the week's required readings *before* coming to class.

Tentative Schedule: Below is the schedule. Note that this is subject to change (see the "Syllabus Changes" section)

Week 1:

Syllabus and course overview, how do we study politics, and what is a theory?

Required Readings:

- *The fundamentals of political science research* (henceforth FPSR), Chapters 1 and 2
- *An R companion to political analysis* (henceforth R-Companion), Introduction and Chapter 1

Week 2 and Week 3:

Review of R, probability and statistics

Required Readings:

- FPSR Ch. 6

Suggested Readings:

- Venables, W. N., D. M. Smith, and the R Core Team. 2017. "An introduction to R."
- Philips, Andrew Q. 2017. "R: A brief introduction"

Week 4:

Causality and the four causal hurdles, research design, and measurement

Required Readings:

- FPSR Ch. 3-5
- R-Companion, Chapters 2 and 3
- *The Economist*. "Is pregnancy in America much deadlier than in other rich countries?" Available at: https://www.economist.com/news/united-states/21725832-question-harder-answer-you-might-think-pregnancy-america-much-deadlier.

Suggested Readings:

- Geddes, Barbara. 1991. "How the cases you choose affect the answers you get: Selection bias in comparative politics." *Political Analysis* 2: 131-150.

Week 5:

Statistical significance and hypothesis testing

Required Readings:

- FPSR Ch. 7
- R-Companion, Chapters 4-7
- Gelman, Andrew and Hal Stern. 2006. "The difference between 'significant' and 'not significant' is not itself statistically significant." *The American Statistician* 60(4): 328-331.

Recommended Readings:

- *The Economist*. "Are results in top journals to be trusted?" Available at:
  https://www.economist.com/blogs/freeexchange/2016/01/fudging-hell.

EXAM I: Friday, Feb 15

Week 6:

Bivariate and multivariate regression and interpretation

Required Readings:

- FPSR Ch. 8 and 9
- R-Companion, Chapters 8 and 9 (Ch. 9, only up to p. 151)

Week 7:

Regression diagnostics and violations of the regression assumptions

Required Readings:

- FPSR Ch. 10 (pp. 232-244)

Week 8:

Dichotomous and categorical variables and interactions. **Discussion of research paper outline**

Required Readings:

- FPSR Ch. 10 (pp. 220-229)
- R-Companion, Chapter 9 (p. 151 onwards)
- Brambor, Thomas, William Roberts Clark and Matt Golder. 2006. "Understanding interaction models: Improving empirical analyses." *Political Analysis* 14: 63-82.

Week 9:

Limited dependent variables and the visual display of information. **Research paper outline due FRIDAY, MARCH 15 BY 11:59PM**

Required Readings:

- FPSR Ch. 11 (pp. 247-254)
- R-Companion, Chapter 10

- Kastellec, Jonathan P. and Eduardo L. Leoni. 2007. "Using graphs instead of tables in political science." *Perspectives on Politics* 5(4):755-771.

Recommended Readings:

- *Skim:* Wickham, Hadley. 2010. "A layered grammar of graphics." *Journal of Computational and Graphical Statistics* 19(1):3-28.

Week 10:

Datasets, cleaning and working with data

Required Readings:

- R-Companion, Chapter 11 (pp. 189-198)
- Herrera, Yoshiko and Devesh Kapur. 2007. "Improving data quality: Actors, incentives, and capabilities." *Political Analysis* 15(4): 365-386.

Exam II: Wednesday, Mar 20

Week 11:

NO CLASS (Spring Break)

Week 12:

Writing a research paper

Required Readings:

- FPSR Ch. 12
- R-Companion, Chapter 11 (pp. 185-188 and p. 198 onwards)
- George Orwell, "Politics and the English Language"
- McCloskey, Donald. 1985. "Economical writing." *Economic Inquiry* 24(2): 187-222.
- *The Economist*. "Signifying nothing?" Available at: http://www.economist.com/node/2384590.

Week 13:

Time series and experiments

Required Readings:

- FPSR Ch 11 (pp. 256-272)
- 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): 653-663.

Recommended Readings:

- You may also want to browse through this free e-book on time series analysis in R: https://a-little-book-of-r-for-time-series.readthedocs.io/en/latest/index.html
- Olken, Benjamin A. 2007. "Monitoring corruption: Evidence from a field experiment in Indonesia." *Journal of Political Economy* 115(2): 200-249.

Week 14:

Potential outcomes framework and causal inference

Required Readings:

- http://egap.org/methods-guides/10-things-you-need-know-about-causal-inference
- 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.

Suggested Readings:

- Stuart, Elizabeth A. 2010. "Matching methods for causal inference: A review and a look forward." *Statistical Science* 25(1): 1-21.

Week 15:

Machine learning

Required Readings:

- Grimmer, Justin. 2015. "We are all social scientists now: How big data, machine learning, and causal inference work together" *PS*: 80-83.
- *The Economist.* "Of prediction and policy." Available at https://www.economist.com/finance-and-economics/2016/08/20/of-prediction-and-policy

Exam III: Friday, Apr 26

Week 15:

Text-as-data

Required Readings:

- Monroe, Burt L., and Philip A. Schrodt. 2008 "Introduction to the special issue: The statistical analysis of political text." *Political Analysis* 16: 351-355.

Final Paper Due: Friday, May 3 (must be uploaded to Canvas by 11:59PM)

STATEMENT ABOUT STUDENTS WITH DISABILITIES

To best accommodate students who may require alternative services, it is crucial that you contact me *early in the semester* if you need such accommodations (i.e., within the first two weeks).

SYLLABUS CHANGES

I reserve the right to make changes to the syllabus during the course of the semester as needed and will make the most updated copy available to you and announce said changes during class.

Last updated: January 14, 2019

UNIVERSITY-MANDATED STATEMENTS

Accommodation for disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.

Classroom behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on classroom behavior and the Student Code of Conduct.

Honor code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.

Sexual misconduct, discrimination, harassment and/or related retaliation

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website. Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Religious holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, I will try to accommodate your requests, but you must contact me early in the semester. See the campus policy regarding religious observances for full details.