GOV 2080
Quantitative Analysis in Political Science
Fall 2021

Monday nights
7-10pm
Druckenmiller 004

Instructor: Michael Franz
Email: mfranz@bowdoin.edu
Phone: 207-798-4318 (office)
Office: 200 Hubbard Hall

Office Hours:
Tuesday, 9-11am
Thursday, 1-2pm
Book an appointment in Blackboard;
Or email about a different time as needed

This course examines the use of empirical methods to study political phenomena. It is designed to help you think like a social scientist and to give you the tools to investigate interesting and important social/political phenomena. Research begins with a puzzle and a question. What makes a puzzle worth investigating? What makes a particular research project worth pursuing? Ask first, who cares? After surmounting this hurdle (a hard enough challenge), it is imperative that we think first about process. How is my puzzle generated? For example, what process generates turnout rates on Election Day? Do voters make rational decisions about the costs and benefits of voting? Or do they care more about civic and democratic responsibilities? Once we hypothesize a process, we must then consider its implications—what should we observe if I'm right? This should motivate us to collect data and leverage it against our expectations. Does the evidence support my claims? How might I be wrong? Finally, we must write it all down, and in a way that is digestible to our readers.

We begin the semester with one major goal of social science, descriptive inference. This is not just description as in the collection and discussion of facts. Descriptive inference is the use of a sample of data to explain a larger social or political phenomenon. Polls are the most common example of a descriptive inference. We will discuss and review the use of polls in American politics, with a specific emphasis on good and bad practices in the polling profession. We follow this with a consideration of causal inference. That is, how do we identify relationships between variables? How are we sure that one variable has a causal effect on another? When are those relationships significant? This raises important questions about how to collect and code our data.

Ultimately, the best way to think like a social scientist is to act like one. As such, your assignments will push you to practice the tools we will read about and discuss in class. This course satisfies the MCSR distribution requirement. To that effect, we cover issues of data collection (which can be simple but challenging) and data analysis (which can be as basic a cross-tabulation and as complex as multi-variate statistical inference tests).

Learning Goals
In this course, you should:

1. Learn about the basics of social science research. You should, in meeting this goal, become familiar with the objectives of descriptive and causal inference.
2. Learn about and practice some common and important statistical analysis tools.

3. Become knowledgeable about statistical analysis software, in this case R, including the writing and usage of scripts to load and analyze data.

These skills are useful beyond the particulars of social science academic work. The software and data skills will be applicable in future jobs, for example. Moreover, the way we think about the challenges of data collection and analysis, and by implication the way we accumulate knowledge and make inferences about the broader world, will ideally make you a better citizen.

Class Structure

The course meets once a week from 7-10pm. In each class session we will:

1. Discuss substantive topics based on the course textbook and assigned application articles. This will last the first 90 to 100 minutes.
2. Work on statistical analysis tools in a lab session that will meet for 60-80 minutes in the same room. This will involve listening to your professor explain a statistical tool, technique, or software, followed by an opportunity to practice it with other students in small groups. You will need a laptop for this part of the course.

Course Requirements

There are five major components to your grade:

1. **Two short assignments** (15 points; each worth 7.5 points)—Topics and instructions are provided below on each due date.

2. **Four problem sets** (50 points; the first three are worth 10 points and the fourth is worth 20 points)—these will cover topics from the Pollock and Edwards text. Due dates are listed on the syllabus. Two will be completed as timed assignments and two will be take-home assignments with a longer completion time.
   ***On the third and fourth problem sets, you may work together on problem sets, if and only if it is a collaborative process. Should you find yourself relying on your partner to "carry" you through the exercise, you are not collaborating. Even if working together in some capacity, *you are responsible for writing up and turning in work separately*. You must also list on the top of the problem sets your collaborators. Any evidence that your work is not your own (e.g., copying significant portions of a write-up) will result in a referral to the College's Judicial Board.**

3. **Discussion Board posts** (5 points)—You will post three times to Blackboard Discussion Boards. I will assign you specific weeks. Prompts are provided in the linked Discussion Boards in the relevant weeks. You will be asked to identify a news story or website that raises an interesting data question. This can cover any course concept or idea that we have covered to date in the semester.

4. **Five lab assignments** (20 points)— See the syllabus for due dates and details on each assignment. You will be graded on these largely for effort. Learning R is hard, and the start-up cost is steep. As such, the main goal—especially with the first few assignments—is to do your best and demonstrate an investment in learning how to code and run analysis in R.

5. **Class participation** (10 points)—this includes attendance and class participation.
   *You are encouraged also to read and comment on classmates' Discussion Board posts. This is a good way to make up for gaps in your in-class participation.

Readings

There are two books for this course, and several outside articles. All the outside readings can be accessed through Blackboard.

1. *The Essentials of Political Analysis*, 6th edition, by Philip Pollock III and Barry Edwards. Sage.

2. *An R Companion to Political Analysis*, 2nd edition, by Philip Pollock III and Barry Edwards. Sage.

Other Issues

1. I expect all students to abide by the Bowdoin Academic Honor Code, which can be accessed online at: https://www.bowdoin.edu/dean-of-students/ccs/community-standards/the-codes.html. If you have any concerns or questions about how to cite work appropriately, please consult a reference librarian or me.

2. If you have chosen to take the class as Credit/D/F, I will only grant a Credit grade if the student has completed all the work for the class.

3. Cite your sources in submitted papers. Talk with me about proper citation if you have any questions. I'm open to any approach you take, so long as it is consistent and generally well-regarded. Consider the Chicago Style, as I'm partial to that one.

4. It is possible (maybe even likely) that you might need to miss a class this semester because of illness or a quarantine related to COVID-19. If that happens, I will schedule a time to meet with you via Zoom to review the missed course work and establish a plan for completing the work.

Class Schedule

Week 1 (9/6)

Introductions and Expectations

Understanding Concepts
- Pollock and Edwards, Chapter 1

Lab Session: Summary statistics in Excel/Sharing our experience with data

Week 2 (9/13)

Understanding Concepts, cont.
- Pollock and Edwards, Chapter 2

Lab Session: Excel, Introduction to R
- Pollock and Edwards [R Companion], Introduction and Chapter 1

Short Assignment 1, due 9/17 by 5pm (7.5 points): Choose one of the following concepts, all of which are used a lot on our campus: intellectual fearlessness, the Common Good, and Inclusive Excellence. Define the concept using the template in Chapter 1 of the Pollock and Edwards textbook. Discuss how you might operationalize and therefore measure the concept. What type of variable would it be, given the discussion in Chapter 2? Conclude with a brief discussion of the challenges of defining this concept.

*3 pages (double-spaced)
****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 3 (9/20)

Descriptive Inference

- John Gerring. 2012. "Mere Description," *British Journal of Political Science*. 42(4): 721-746.

An Introduction to Polls

- Pew Research Reports:
  - "U.S. Survey Research"
  - "What Our Transition to Online Polling Means for Decades of Phone Survey Trends"

Lab Session: Reading data, changing directories, and summary statistics in R

- Pollock and Edwards [R Companion], Chapter 2

LAB ASSIGNMENT 1 (due by 9/24 at 5pm): Complete Exercise 1 in Chapter 2 of the R Companion book. Use R Markdown to generate a pdf of your work. ****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 4 (9/27)

Question Writing in Polls

- Jean Converse and Stanley Presser, "Survey Questions: Handcrafting the Standardized Questionnaire," Sage.

Lab Session: R scripts, manipulating data (aggregating, recoding)

- Pollock and Edwards [R Companion], Chapter 3

LAB ASSIGNMENT 2 (due by 10/1 at 5pm): Complete Exercise 2 in Chapter 3 of the R Companion book. Use R Markdown to generate a pdf of your work. ****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Short Assignment 2, due 10/3 at 5pm (7.5 points): Design two survey questions for our class poll. Why did you select these topics and questions? Defend the form and content of your questions by referring to the arguments in Converse and Presser. For example, why did you choose open or closed forms? Are there concerns about question order and wording? Good papers will demonstrate that your questions are designed in part with the advice of Converse and Presser.
*3 pages (double-spaced)
****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 5 (10/4)

Polling Errors in 2020

- "Task Force on 2020 Pre-election Polling: An Evaluation of the 2020 General Election Polls," American Association for Public Opinion Research

Lab Session: R scripts, statistical analysis (comparing means and trends across groups)

- Pollock and Edwards [R Companion], Chapter 4

Week 6 (10/18)

Analyzing a Poll

- Pollock and Edwards, Chapter 6

Lab Session: Statistical analysis (difference of means)

- Pollock and Edwards [R Companion], Chapters 5 and 6

LAB ASSIGNMENT 3 (due by 10/22 at 5pm): Complete Exercise 1 (parts A and B only) in Chapter 6 of the R Companion book. Use R Markdown to generate a pdf of your work. ****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 7 (10/25)

Review for Problem Set 1

Finalizing the 2021 Polar Poll

Lab Session: R check-in and catch-up

Problem Set 1, due 10/29 at 5pm (10 points)
You can complete this on paper and scan your work and/or take a picture of the work and upload as an image file or pdf.
*You will have two hours to complete the problem set. It will be available starting on Tuesday morning of Week 7, and you have until 5pm on Friday to complete it. I will discuss in class additional details of accessing the problem set.
****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 8 (11/1)

Target Week for Fall 2021 Polar Poll
(more info forthcoming)

Analyzing a Poll, cont.

- Pollock and Edwards, Chapter 7

Lab Session: Statistical analysis (Chi-square and Measures of Association)

- Pollock and Edwards [R Companion], Chapter 7

Week 9 (11/8)

Review for Problem Set 2

Introducing Causal Inference

- Reading TBD

Lab Session: R Graphics

Problem Set 2, due 11/12 at 5pm (10 points)

You can complete this on paper and scan your work and/or take a picture of the work and upload as an image file or pdf.
*You will have two hours to complete the problem set. It will be available starting on Tuesday morning of Week 9, and you have until 5pm on Friday to complete it. I will discuss in class additional details of accessing the problem set.
****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 10 (11/15)

Framing Hypotheses

- Pollock and Edwards, Chapters 3 and 4

Lab Session: Statistical analysis (regression) [Initial look at Polar Poll data]

- Pollock and Edwards [R Companion], Chapter 8

LAB ASSIGNMENT 4 (due by 11/19 at 5pm): Complete Exercise 2 in Chapter 8 of the R Companion book. Use R Markdown to generate a pdf of your work. ****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 11 (11/22)

Experiments and Controlled Comparisons

- Pollock and Edwards, Chapter 5
- Reading TBD

Lab Session: Statistical analysis (regression)

- Pollock and Edwards [R Companion], Chapter 8

LAB ASSIGNMENT 5 (due by 11/30 at 5pm [note the deadline]): Run a bi-variate regression model using the Polar Poll data and using code supplied by Professor Franz. Use R Markdown to generate a pdf of your work. ****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 12 (11/29)

Bivariate and Multivariate Regression

- Pollock and Edwards, Chapter 8
- Reading TBD

Lab Session: More graphics

- Pollock and Edwards [R Companion], Chapter 9

Problem Set 3, due 12/3 at 5pm (10 points)
You can complete this on paper and scan your work and/or take a picture of the work and upload as an image file or pdf.
*The assignment will be posted on Tuesday, 11/30.
****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**

Week 13 (12/6)

Bivariate and Multivariate Regression, cont.

- Reading TBD

Logistic regression

- Pollock and Edwards, Chapter 9

Lab Session: Logistic regression

- Pollock and Edwards [R Companion], Chapter 10

Problem Set 4, due 12/15 at 10pm (20 points)
*The assignment will be posted on Monday, 12/6. You must upload the completed assignment by 12/15. Use R Markdown to generate a pdf of your work.
****Upload the assignment in Blackboard, in the "Assignments" section located in the left-side menu options.**