POLS 4150H: Research Methods in Political Science [*]

Instructor: David Cottrell

Spring, 2022

Class hours:	MWF; 1:50 pm – 2:40 pm
Class location:	Baldwin 302
Office hours:	F; 3:00pm – 4:00pm (or by appointment)
Office location:	Baldwin 378

Course Description

Scholars in political science and in disciplines across the social sciences are increasingly relying on quantitative, data-driven methods to answer important questions in their field. This course provides an introduction to the study of politics through quantitative reasoning and data analysis. Like a traditional research methods course, we will cover the fundamentals of empirical research in political science including causal inference, summary statistics, data visualization, and regression. However, unlike a traditional research methods course, this course places a particular emphasis on developing technical skills used to conduct real-world data analysis. Therefore, a significant amount of the coursework will be dedicated to learning how to program in the statistical computing environment, *R*. The goal is for you to gain a valuable skillset in data analysis that you can use in your political science classes and, more importantly, in your future careers.

Prerequisites

You do not need any prior experience with programming or statistical computing. Although prior experience may be helpful, the class is designed to help you develop these skills without such experience. Nonetheless, you should be aware that there is a steep learning curve to coding. It will require time, effort, practice, and patience.

Method of instruction

This course will be taught face-to-face. Instruction will consist of lectures on Mondays and Wednesday and in-class assignments on Friday. You must attend class in-person, as there is no online alternative.

Attendance

Attendance is expected. If you are unable to attend class for whatever reason, please have a classmate take notes for you.

Textbook

Imai, K. (2017). *Quantitative Social Science: An Introduction.* Princeton University Press (Preview Chapter 1 and Chapter 2. Follow links on ELC to purchase through Perusall.)

Data for textbook

- Ch.1: INTRO.zip
- Ch.2: CAUSALITY.zip
- Ch.4: PREDICTION.zip

Grades

15% Perusall reading assignments
35% In-class data assignments
25% Midterm exam
25% Final exam

A	100-94%	**B**	86-84%	**C**	76-74%	**D**	66-64%
A−	93-90%	**B−**	83-80%	**C−**	73-70%	**D−**	60-63%
B+	89-87%	**C+**	79-77%	**D+**	69-67%	**F**	59-0%

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[*]The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Reading assignments in Perusall (15%)

You do not need to purchase a physical copy of the textbook. Students will instead read from the textbook each week using the Perusall app. Perusall is an e-reading platform that allows students to read and annotate the textbook collaboratively with other students. Using Perusall, students can provide comments about the text as they read, ask questions about the text, and provide feedback to their peers in an online environment. Moreover, Perusall allows me to evaluate the reading engagement of students throughout the course. It uses an algorithm to assess the quality of your comments, questions and responses and will ultimately provide a reading engagement score for each reading assignment. To get full credit, you will need to give 3 quality annotations for each assignment. Perusall will score each annotation as high quality (5 points), medium quality (4 points), and low quality (3 points). Please download and review the rubric and example to get a better understanding of how reading engagement is scored in Perusall. The engagement scores will be averaged across the assignments. To begin, click on the Perusall reading tab in eLC and follow the directions to create an account. To complete each assignment, click on the assignment tab in eLC. You should always access Perusall through eLC.

In-class data assignments (35%)

Every week, you will have a data assignment to be completed in class. These assignments will ask you to apply the concepts we have covered in lecture and in the readings by analyzing data using R. You will submit your answers in eLC for credit by Friday of that week.

Midterm exam (25%)

The midterm exam will be completely online and will be made available in eLC on March 1st. You will have four days to begin the exam and 24 hours to complete the exam once you have begun. It will be designed to test your ability to analyze data in R using the skills you developed in Chapters 1 and 2.

Final exam (25%)

The final exam will be completely online and will be made available in eLC on May 5th. You will have five days to begin the exam and 24 hours to complete the exam once you have begun. It will be designed to test your ability to analyze data in R using the skills that you developed primarily in Chapter 4.

Agenda

Week	Date	Topic	Due Monday	Sections
1	Jan 10	Intro/syllabus, Getting started in R and RStudio	Nothing due	
2	Jan 17	Object-oriented programming	Reading assignment 1	1.3.0 - 1.3.4
3	Jan 24	Vectors and data frames	Reading assignment 2	1.3.5 - 1.4.0
4	Jan 31	Subsetting data	Reading assignment 3	2.0.0 - 2.2.5
5	Feb 07	Causality and counterfactuals	Reading assignment 4	2.3.0
6	Feb 14	Randomized control trials	Reading assignment 5	2.4.0 - 2.4.2
7	Feb 21	Observational Studies	Reading assignment 6	2.5.0 - 2.7
8	Feb 28	Review and Midterm	Nothing due	
9	Mar 14	Loops	Nothing due	
10	Mar 21	Loops (Cont.)	Reading assignment 7	4.0.0 - 4.1.3
11	Mar 28	Linear regression	Reading assignment 8	4.2.0 - 4.2.6
12	Apr 4	Linear regression and causation	Reading assignment 9	4.3.0 - 4.3.2
13	Apr 11	Heterogeneous effects	Nothing due	
14	Apr 18	Heterogeneous effects (Cont.)	Reading assignment 10	4.3.3
15	Apr 25	Review	Nothing due	

Statistical Software

For data analysis, we will be using R. R is an open-source (free!) statistical computing environment widely used for manipulating data, performing statistics, and producing graphics. To run R, we will take advantage of a commonly used integrated development environment (IDE) called RStudio. RStudio provides a user-friendly interface for accessing and computing in R. Complete the following steps:

1. First, download R and follow the instructions to install.

   - For macOS 10.13 (High Sierra) or higher you can download R through this link: R-4.1.1.pkg. Once downloaded, double click on the file to begin installation.

   - For macOS 10.9 (Mavericks) or higher you can download R through this link: R-3.3.3.pkg. For older versions of macOS, please update your operating system. Otherwise, contact me.

   - For Windows, download R through this link: R-4.1.1-win.exe. Once downloaded, double click on the file to begin installation.

2. Second, download RStudio and follow the instructions to install.

   - For all operating systems go to this link and download the free version of RStudio Desktop. Then follow the instructions for installation into your applications folder.

Ethics

UGA Student Honor Code: "*I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others.*" A Culture of Honesty, the University's policy and procedures for handling cases of suspected dishonesty, can be found at www.uga.edu/ovpi. Please adhere to the university's standards for academic honesty and integrity. Do not submit someone else's code as your own. You must complete your exams independently.

Accessibility Needs

Students with special needs that require accommodation should notify me and the Office for Disability Services in the first two weeks of the course so appropriate arrangements can be made. All information and documentation of special needs is confidential.