

Course: POLS 4150 Applied Politics
Title: Research Methods in Political Science
In-person Class Meetings: T/Th, 2:20pm - 3:35pm
Location: Baldwin Hall 101D
Term: Fall 2023
Professor: David Cottrell
Email: david.cottrell@uga.edu
Office Hours: Tuesday, from 3:30pm-5:00pm or by appointment @ Baldwin Hall 380D.

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 coding. The class is designed to help you develop these skills without such experience. Nevertheless, you should be aware that there is a steep learning curve to coding. It will require time, effort, practice, and patience.

REQUIRED TEXTS:

TEXTBOOK: Llaudet and Imai. *Data Analysis for Social Science: A Friendly Introduction*. Princeton University Press

Chapter 1...	Introduction
Chapter 2...	Estimating Causal Effects with Randomized Experiments
Chapter 3...	Inferring Population Characteristics via Survey Research
Chapter 4...	Predicting Outcomes Using Linear Regression
Chapter 5...	Estimating Causal Effects with Observational Data
Chapter 6...	Probability
Chapter 7...	Quantifying Uncertainty

Data for the textbook can be found on ELC.

READING IN PERUSALL

You do not need to purchase a physical copy of the textbook. You 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). To begin, go to <https://www.perusall.com> and follow the directions to create an account – enter the course code COTTRELL-RCVET to connect to our course. You will then need to purchase access to the textbook. Complete each reading assignment by the due date.

LAPTOPS:

We will be conducting data analysis in class so that you can practice the skills that you've learned from the textbook and lectures. To conduct data analysis, we will be using the R statistical computing environment on your computer. Please bring your laptops with R installed to every class. If you are unable to bring a laptop to class please speak with me.

STATISTICAL SOFTWARE

For data analysis, we will be using R, which 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, go to <https://cran.r-project.org> and follow the links to download R. Be careful to download the correct R package for your system's platform. Pay close attention to your system's operating system and processor. Once you've downloaded the proper R package to your computer, open it and follow the instructions to install.
- 2) Second, go to this [website](#) to download RStudio Desktop by clicking on the big blue button listed under the second step. Follow the instructions to install.

METHOD OF INSTRUCTION:

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

UGA STUDENT HONOR CODE:

Please adhere to the university's standards for academic honesty and integrity. Procedures for handling cases of suspected dishonesty, can be found at www.uga.edu/ovpi.

PREFERRED NAMES/PRONOUNS

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal

name. I am eager to address you by your preferred name and/or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records.

PROHIBITION ON RECORDING LECTURES

In the absence of written authorization from the UGA Disability Resource Center, students may not make a visual or audio recording of any aspect of this course. Students who have a recording accommodation agree in writing that they:

- Will use the records only for personal academic use during the specific course.
- Understand that faculty members have copyright interest in their class lectures and that they agree not to infringe on this right in any way.
- Understand that the faculty member and students in the class have privacy rights and agree not to violate those rights by using recordings for any reason other than their own personal study.
- Will not release, digitally upload, broadcast, transcribe, or otherwise share all or any part of the recordings. They also agree that they will not profit financially and will not allow others to benefit personally or financially from lecture recordings or other course materials.
- Will erase/delete all recordings at the end of the semester.
- Understand that violation of these terms may subject them to discipline under the Student Code of Conduct or subject them to liability under copyright laws.

CARE IN USING THIRD-PARTY GRADING SOFTWARE

Care should be exercised using electronic platforms for grading student assignments, exams, etc. Student information is FERPA-protected. If you are planning to use third-party software/web-based platforms for grading, please consult with EITS Computer Equipment, Software and Services at 706-542-6033 (2-6033 if using a campus landline) to ensure FERPA-protected protocols are followed.

CHATGPT

ChatGPT is a large language model chatbot that uses machine learning algorithms to generate content in response to user prompts. For some instructors, ChatGPT poses challenges for classroom assignments and tests. Under the right conditions, it can also be harnessed as a learning tool. Please see these tips (<https://ctl.uga.edu/resources/documents/ChatGPT-Guidance-for-Instructorsc.pdf>) from the UGA CTL for navigating ChatGPT and other chatbots.

EVALUATION:

- (35%) In-class data assignments** – Throughout the semester you will complete ten data assignments in class. These assignments will ask you to apply the concepts we have covered in the reading and in lecture by analyzing real-world data using R. You will submit your answers in eLC for credit by the due date.
- (5%) Attendance/Participation** – You are expected to attend every class having read the assigned readings and to participate in classroom discussions. Your participation is not only beneficial to you individually, but it also improves the classroom learning environment. Your participation will be graded based on the frequency and quality of your contributions.
- (5%) Perusall reading assignments** – You are expected to complete the Perusall reading assignments ahead of class. Log into <https://www.perusall.com> and complete the reading assignments before the due date. Be sure to give three quality comments for credit.
- (15%) Midterm 1** – The first midterm exam will be completely online and will be made available in eLC on Friday, October 6th. You will have four days to begin the exam and 24 hours to complete the exam once you have begun. The midterm will cover chapters 1–3.
- (15%) Midterm 2** – The second midterm exam will be completely online and will be made available in eLC on Friday, November 3rd. You will have four days to begin the exam and 24 hours to complete the exam once you have begun. The midterm will cover chapters 1–5.
- (25%) Final** – The final exam will be completely in-person on December 7th. You will need to bring your laptop to the exam and be prepared to analyze a dataset in R. The final will be cumulative, spanning all topics covered throughout the class.

Grade scale:

A	93.0000 and above
A-	92.9999 to 90.0000
B+	87.0000 to 89.9999
B	86.9999 to 83.0000
B-	82.9999 to 80.0000
C+	77.0000 to 79.9999
C	76.9999 to 70.0000
D	65.0000 to 69.9999
F	64.9999 and below

COURSE AGENDA:

<u>DAY</u>	<u>DATE</u>	<u>AGENDA</u>	<u>TOPIC</u>
Th	17-Aug	Syllabus	Getting started
Tu	22-Aug	Read Ch. 1.1 - 1.6	Introduction to RStudio and programming in R
Th	24-Aug	Read Ch. 1.7 - 1.9	Loading and making sense of datasets
Tu	29-Aug	In-class Assignment 1	
Th	31-Aug	NO CLASS	
Tu	5-Sep	Read Ch. 2.1 - 2.4	Fundamental problem of causal inference and estimating treatment effects
Th	7-Sep	In-class Assignment 2	
Tu	12-Sep	Read Ch. 2.5 - 2.6	Relational operations, new variables, and sub-setting
Th	14-Sep	In-class Assignment 3	
Tu	19-Sep	Read Ch. 3.1 - 3.4 (skip: 3.2.2, 3.4.1 - 3.4.3, 3.4.5)	Inferring population characteristics, descriptive statistics, histograms
Th	21-Sep	In-class Assignment 4	
Tu	26-Sep	Read Ch. 3.5 - 3.7	Exploring the relationship between 2 variables (correlation)
Th	28-Sep	In-class Assignment 5	
Tu	3-Oct	Review	Cumulative through Ch. 3
Th	5-Oct	Practice Midterm 1	
Tu	10-Oct	Read Ch. 4.1 - 4.7 (skip: 4.4.2)	Linear regression for predicting outcomes
Th	12-Oct	In-class Assignment 6	
Tu	17-Oct	Read Ch. 5.1 - 5.3	Linear regression for estimating causal effects
Th	19-Oct	In-class Assignment 7	
Tu	24-Oct	Read Ch. 5.4 - 5.6	Using linear regression to control for confounders
Th	26-Oct	In-class Assignment 8	
Tu	31-Oct	Review	Cumulative review through Ch. 5
Th	2-Nov	Practice Midterm 2	
Tu	7-Nov	Read Ch. 6.0 - 6.4	Introduction to probability, random variables, Bernoulli and Normal distributions
Th	9-Nov	Read Ch. 6.5 - 6.6	Population parameters and sample statistics.
Tu	14-Nov	Read Ch. 7.0 - 7.1	Quantifying uncertainty in estimators
Th	16-Nov	Read Ch. 7.3 - 7.6	Hypothesis testing, standard error of beta.
Tu	21-Nov	In-class Assignment 10	Cumulative application
Th	23-Nov	THANKSGIVING	
Tu	28-Nov	In-class Assignment 10 (Cont.)	Cumulative application
Th	30-Nov	Review	
F	7-Dec	In-person Final (3:30pm - 6:30pm)	