

# POL/GLA 5013: Research Methods

Spring 2024

Camilo Nieto-Matiz ([camilo.nieto-matiz@utsa.edu](mailto:camilo.nieto-matiz@utsa.edu))

Department of Political Science & Geography

Office: MS 4.02.46

**Classroom:** MS-4.02.64

**Schedule:** Tuesday 1:00 - 3:45 pm

**Office hours:** Monday 2:00 - 3:30 pm and by appointment

## 1 Course Description

This course aims to equip students with a basic understanding of the empirical and quantitative methods used by social scientists to study social and political phenomena. In each session, we will strike a balance between theory and practice. In particular, we will learn how to use R, a powerful programming language with multiples uses in data analysis.

We will begin by learning how to import datasets into R and focusing on the fundamentals of data visualization and data wrangling. After that, we will delve into the main building blocks of data modeling and statistical analysis, namely, linear regression with one and multiple independent variables. This portion of the course will also introduce the fundamental problem of causal inference and some of its solutions, with a focus on natural experiments. Finally, the course will introduce students to statistical inference, sampling, confidence intervals, and hypothesis testing.

## 2 Course Objectives

The aim of this class is to introduce you to the practice of quantitative research. By the end of this class you will be able to:

- Explore, analyze, and visualize data using the R programming language.
- Conduct data analyses using various quantitative approaches. In particular, students should be able to fit linear models and interpret their results.
- Understand how to formulate questions and seek answers of the social world that can be answered using quantitative data and inferential statistics.
- Be able to read quantitative research papers and formulate sophisticated critiques about the appropriateness of methods and analysis used.

### 3 Software

We will be using the R language for data wrangling, visualization, and analysis, as it offers several benefits. Firstly, R is an open-source and free software that is supported by a large and increasingly growing community of users. Secondly, since R requires you to write your code as you are working, it forces you to think carefully about the statistical assumptions that underlie your modeling decisions. Additionally, it emphasizes reproducible research by making it simpler to keep track of your workflow, ensuring that others can replicate and verify the results.

To download R, go to the [Comprehensive R Network \(CRAN\)](#) and select a mirror, then choose your operating system and install. Once you do that, download [RStudio](#) by selecting the appropriate version for your OS. While R is the programming language itself, RStudio is a user-friendly software that facilitates the use of R by providing a more interactive and organized environment. Both softwares must be downloaded, but we will be using R only *through* RStudio.

### 4 Textbooks

We will be using the following textbooks:

Ismay, Chester & Albert Kim. 2019. *Statistical inference via data science: A ModernDive into R and the tidyverse*. CRC Press.

Wickham, Hadley, Mine Çetinkaya-Rundel & Garrett Golemund. 2023. *R for data science*. O'Reilly Media, Inc.

Both are free and available online. All other readings can be found on Canvas.

### 5 Grade breakdown

- Assignments: **40%**
- Final paper: **30%**
- Presentation: **20%**
- Class participation: **10%**

#### Assignments (40%)

There will be several problem sets throughout the semester. No assignment will be accepted without a code appendix or reproduction archive attached. Assignments are to be submitted as .pdf files. Absolutely no late assignments will be accepted. Assignments should be submitted by Monday 11:59 pm

- **Assignment 1:** due Week 3 (January 29)

- **Assignment 2:** due Week 5 (February 12)
- **Assignment 3:** due Week 7 (February 26)
- **Assignment 4:** due Week 9 (March 18)
- **Assignment 5:** due Week 12 (April 8)

### **Final paper (30%)**

You will write a research paper about the question of your choice. The goal of the research paper is to apply some form of quantitative reasoning for a substantive problem in your field of interest. While the paper may be descriptive in nature and rely on basic descriptive statistics, students are encouraged to use a slightly more advanced approach, such as multiple linear regression. There are hundreds of readily available data sets curated and published by NGOs, government agencies, and published papers (e.g. replication materials), etc. You are responsible for identifying and getting the data for your paper. Just like any published journal article, papers should include an introduction to the research question, a literature review, the hypotheses to be tested, a description of the data and measures, an explanation of the empirical methodology, results, and the discussion/interpretation of results.

The paper is due **May 8**.

Students will also submit a short memo of their intended research paper topic. In this memo, you will state the topic and research question, provide a short description of the relationship of interest (e.g. higher levels of democracy have a positive impact on food security), and the needed variables to conduct the analysis and their sources. Make sure to also provide a brief list of scholarly references about the topic at hand.

This is due **March 1st**. Email this to me as a pdf file.

### **Presentation (20%)**

This is a 10 minute presentation of the research paper, followed by questions from the other students.

This will take place on **April 30**.

## **6 Policies**

### **Office hours and communication**

You are welcome to schedule a meeting with me during office hours. An alternative way is to arrange a meeting via email. The time I have listed is *for you*. It is a time I have dedicated to being available to you to provide assistance and for you to ask questions about the assignments and papers, your performance in the semester, or talk about the department, graduate school, and career options.

## Attendance

Attendance and participation are mandatory. They are also necessary conditions for success in this class. If you are ill or cannot attend class, please email me in advance to let me know you cannot make it. Unexcused absences will be reflected in the participation component of the grade.

## Late Policy

Late papers will be accepted in cases of personal emergency. I strongly encourage you to discuss any problems with me before the papers are due. Late submissions will receive a 5/100 deduction per two hours of lateness.

## Grading

This course will be grade according to the following scale:

A	≥ 93	B+	87-89	C+	77-79	D+	67-69
A-	90-92	B	83-86	C	73-76	D	63-66
		B-	80-82	C-	70-72	D-	60-62

F = 59 or below

## Academic Honesty

Academic dishonesty will not be tolerated. In that sense, I expect your submitted work to be of your own and not a plagiarism of other people's ideas and works. Plagiarism, in any of its forms, will be reported in accordance with the procedure required by the Student Code of Conduct. It is important for you to familiarize with the proper methods of citation to avoid any possible misunderstanding. In all your work, you are free to choose your preferred citation style (e.g. APA, MLA, Chicago). The Student Code of Conduct is Section B of the Appendices in the Student Information Bulletin. Scholastic Dishonesty is listed in the **Student Code of Conduct** (Sec. B of the Appendices) under Sec. 203. For more information on the Student Code of Conduct, contact the **Student Conduct and Community Standards** team.

## 7 Class schedule

### Week 1: Introduction to the course

- We will discuss the syllabus, including the course objectives and requirements.

### Week 2: Social science research

- Kellstedt, Paul & Guy Whitten. 2018. *The Fundamentals of Political Science Research*, Cambridge: Cambridge University Press. Chapter 3.
- Imai, Kosuke. 2017. *Quantitative Social Science. An Introduction*, Princeton: Princeton University Press. Chapter 1.

### Week 3 and 4: Data visualization

- Ismay, Chester & Albert Kim. 2019. *Statistical inference via data science: A ModernDive into R and the tidyverse*. CRC Press, Chapter 2.
- Wickham, Hadley, Mine Çetinkaya-Rundel & Garrett Golemund. 2023. *R for data science*. O'Reilly Media, Inc., Chapter 3.

### Week 5 and 6: Data wrangling

- *ModernDive*, Chapter 3.
- *R for data science*, Chapter 5.

### Week 7 and 8: Descriptive statistics

- Kellstedt, Paul & Guy Whitten. 2018. *The Fundamentals of Political Science Research*, Cambridge: Cambridge University Press. Chapter 6.
- Navarro, Danielle. 2023. *Learning statistics with R: A tutorial for psychology students and other beginners*, Chapter 5.

### Week 9 and 10: Modeling I: from correlation to regression

- Kellstedt, Paul & Guy Whitten. 2018. *The Fundamentals of Political Science Research*, Cambridge: Cambridge University Press. Chapters 8 (section 8.4 only) and 9.
- *ModernDive*, Chapter 5.

### Week 11: Prediction and causality

- *ModernDive*, Chapter 6.
- Cunningham, Scott. 2021. *Causal inference: The Mixtape*. New Haven: Yale University Press, Chapter 1.

### **Week 12: Natural experiments**

- Dunning, Thad. 2012. *Natural experiments in the social sciences: A design-based approach*. Cambridge: Cambridge University Press, Chapters 1 and 3.

### **Week 13 and 14: Uncertainty and hypothesis testing**

- *ModernDive*, Chapters 7 and 8.

### **Week 15: Student presentations**

## 8 Common Syllabus Content

### Counseling Services

Counseling Services provides confidential, professional services by staff psychologists, social workers, counselors, and psychiatrists to help meet the personal and developmental needs of currently enrolled students. Services include individual brief therapy for personal and educational concerns, couples/relationship counseling, and group therapy on topics such as college adaptation, relationship concerns, sexual orientation, depression, and anxiety. Counseling Services also screens for possible learning disabilities and has limited psychiatric services. Visit the [Counseling and Mental Health Services](#) website or call (210) 458-4140 (Main Campus) or (210) 458-2930 (Downtown Campus).

### Student Code of Conduct and Scholastic Dishonesty

The Student Code of Conduct is Section B of the Appendices in the Student Information Bulletin. Scholastic Dishonesty is listed in the [Student Code of Conduct](#) (Sec. B of the Appendices) under Sec. 203 for more information. For more information on the Student Code of Conduct, contact the [Student Conduct and Community Standards](#) team.

### Accommodations for Students with Disabilities

The University of Texas at San Antonio in compliance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act provides “reasonable accommodations” to students with disabilities. Only those students who have officially registered with Student Disability Services and requested accommodations for this course will be eligible for disability accommodations. Instructors at UTSA must be provided an official confidential notification of accommodation through Student Disability Services. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found on the [Student Disability Services](#) webpage or by calling their office at (210) 458-4157. Accommodations are not retroactive.

### Tutoring Services

Tomás Rivera Center (TRC) may assist in building study skills and tutoring in course content. The TRC has several locations at the Main Campus and is also located at the Downtown Campus. For more information, visit the [Tutoring Services](#) website or call (210) 458-4694 on the Main Campus and (210) 458-2838 on the Downtown Campus.

### Academic Success Coaching

The Tomás Rivera Center (TRC) Academic Success Coaching Program offers one-on-one study skills assistance through Academic Coaching. Students meet by appointment with a professional to develop more effective study strategies and techniques that can be used across courses. Group workshops are also offered each semester to help students defeat

common academic challenges. Find out more information on [Academic Success Coaching](#) website or call (210) 458-4694.

### **The Writing Center**

The Judith G. Gardner Center for Writing Excellence helps the entire UTSA Community with various writing projects, questions, and challenges. Our experienced tutors provide assistance to current undergraduates, graduate students, and faculty/staff members with each step of the writing process. Services are located at the Main Campus in the JPL building (2.01.12D) and at the Downtown Campus in the Frio Street Building (FS 4.432). They also offer online tutoring seven days a week by appointment so that you can chat live with a tutor. Visit [The Writing Center's](#) website to learn more and to schedule an appointment.

### **Sexual Harassment and Sexual Misconduct**

UTSA is committed to providing an environment free from all forms of discrimination and sexual harassment, including sexual misconduct, sexual assault, domestic violence, dating violence, and stalking. If a student has experienced or experiences any of these incidents, know that UTSA has resources to help.

UTSA faculty have the responsibility to create a learning environment that is safe and free from hostility. State and federal law as well as [UTSA's Handbook of Operating Procedures \(HOP 9.24\)](#) require that instructors must report incidents of sexual harassment and sexual misconduct they learn about to the Title IX Coordinator or a Deputy Title IX Coordinator. This means that if a student tells their instructor about a situation (including classroom discussions, written work and/or one-on-one meetings) involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, the instructor must report it to the [Equal Opportunity Services & Title IX Office](#). Although the faculty member must report the situation, the student will still have options about how their case will be handled, including whether or not the student wishes to pursue a formal complaint. The university's goal is to make sure students are aware of the range of options available to them and have access to the resources they need.

If a student wishes to speak to someone confidentially, they can contact any of the following on-campus resources, who are not required to report the incident to the EOS/Title IX Office: (1) [Counseling Services](#) at 210-458-4140; (2) [Student Health Services](#) at 210-458-4142; or (3) The [PEACE Center](#) at 210-458-4077.

### **Campus Safety & Emergency Preparedness**

UTSA is committed to providing a safe campus environment for students, faculty, staff, and visitors. As members of the community, we encourage you to take the following actions to be better prepared in case of an emergency:



- Alerts: Ensure you are signed up for UTSA Alerts through your [ASAP.utsa.edu](https://asap.utsa.edu) account.
- Emergency Procedures: Read through the information related to emergency preparedness on the [UTSA Alerts](#) page.
- Safety App: Download the [LiveSafe App](#) on your phone through the Apple store or Google Play; visit the LiveSafe App website for details.
- Important Numbers: UTSA Police - Emergency: (210) 458-4911; Non-Emergency: (210) 458-4242

Each one of us play a critical role in making sure ALL ROADRUNNERS are safe, know what to do, and how to stay informed during a campus crisis. Don't be scared, be prepared! #UTSAprepared

### **Inclusivity Statement**

The University of Texas at San Antonio, a Hispanic Serving Institution situated in a global city that has been a crossroads of peoples and cultures for centuries, values diversity and inclusion in all aspects of university life. As an institution expressly founded to advance the education of Mexican Americans and other underserved communities, our university is committed to ending generations of discrimination and inequity. UTSA, a premier public research university, fosters academic excellence through a community of dialogue, discovery, and innovation that embraces the uniqueness of each voice.

### **The Roadrunner Creed**

The University of Texas at San Antonio is a community of scholars, where integrity, excellence, inclusiveness, respect, collaboration, and innovation are fostered.

As a Roadrunner, I will:

- Uphold the highest standards of academic and personal integrity by practicing and expecting fair and ethical conduct;
- Respect and accept individual differences, recognizing the inherent dignity of each person;
- Contribute to campus life and the larger community through my active engagement; and
- Support the fearless exploration of dreams and ideas in the advancement of ingenuity, creativity, and discovery.

Guided by these principles now and forever, I am a Roadrunner!