POL 3803 002

Scope and Methods

Course Syllabus - Fall 2025

UT San Antonio™
The University of Texas at San Antonio

Course Information

Course Description: Prerequisite: POL 1013. An introduction to fundamental quantitative analysis and its applications to the study of political phenomena. The class will cover descriptive and inferential statistics, from hypothesis testing through multivariate regression. The class will emphasize applied learning, so students will practice how to obtain, prepare, visualize, and analyze data using R programming language. The course is generally offered in: Fall, Spring.
Credit Hours: 3
Course Modality: Traditional in-person

Meeting Times

Duration: 08/25/2025-12/12/2025
Campus: Main Campus
Location: MS 3.02.54
Time(s): TR 1:00 PM - 2:15 PM

Learning Goals

At the end of the course, you will be able to:

- Evaluate whether the quantitative evidence presented by an author is enough to support their claims.
- Understand the fundamentals of inferential statistics, including how to translate a social scientific concept into an observable, measurable characteristic; the statistical principles that allow researchers to gain knowledge about a phenomenon or characteristic of interest without having observed it; and what we can learn from quantitative evidence, what we are uncertain about, and how to handle that uncertainty.
- Understand how to acquire, clean, and explore data, as well as conduct statistical analysis using the R programming language and the Rstudio interface.

- Effectively communicate (visually and in written form) your analysis and findings.

Communicate with Me

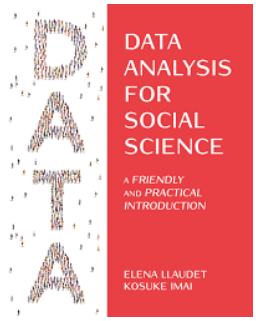
Instructor Name: Connor William Dye
Department
Political Science and Geography
Office Location
MS.4.03.68
Student Hours
Th 2:30-4
Email Address: connor.dye@utsa.edu
Preferred Method of Communication
Email

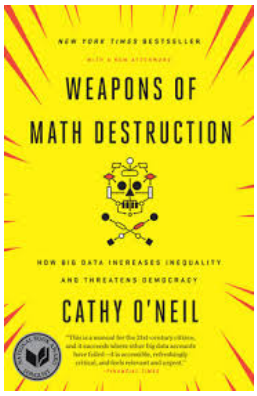
About Me & My Teaching Philosophy

I am committed to empowering my students by providing them with the tools they need to explore and engage with their own academic interests. I believe in giving students substantial leeway in choosing their research topics, creating an environment where they can pursue what genuinely excites them. In my research, I specialize in applying natural language processing (NLP) techniques to the study of political institutions, with a particular focus on the U.S. Congress and the federal bureaucracy. Outside of academia, I enjoy cooking, finding restaurants that serve delicious *and* cheap food, exercising, travelling, golfing, and watching RedZone.

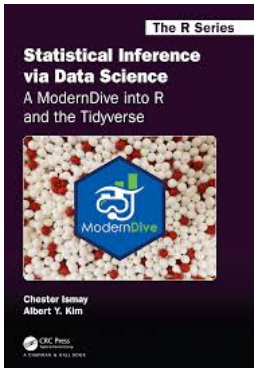
Course Materials

Data analysis for social science: a friendly and practical introduction
Authors: Llaudet, Elena; Imai Kosuke
Publisher: Princeton University Press
Publication Date: 2023
Required/Recommended/Optional: Required

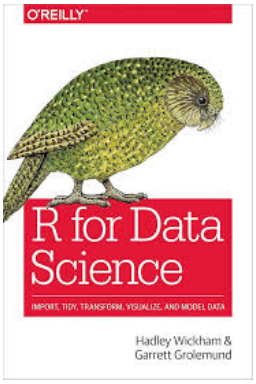




Weapons of Math Destruction
ISBN: 978-0553418811
Authors: O'Neil, Cathy
Publisher: Crown
Publication Date: 2016
Required/Recommended/Optional: Required



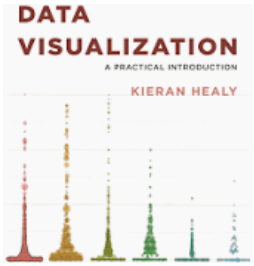
Modern Dive
Authors: Ismay and Kim
Required/Recommended/Optional: Optional
Additional Information
https://moderndive.com



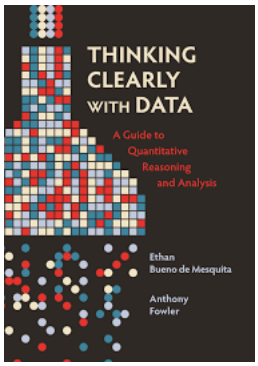
R for Data Science
Authors: Grolemund and Wickham
Required/Recommended/Optional: Optional
Additional Information
https://r4ds.hadley.nz/

OpenIntro Statistics

Authors: David Diez, Mine Cetinkaya-Rundel, and Christopher Barr
Required/Recommended/Optional: Optional
Additional Information
https://leanpub.com/openintro-statistics



Data Visualization: A Practical Introduction
Authors: Healy, Kieran
Required/Recommended/Optional: Optional
Additional Information
http://socviz.co/



Thinking clearly with data: a guide to quantitative reasoning and analysis
Authors: Bueno de Mesquita, Ethan; Fowler, Anthony
Publisher: Princeton University Press
Publication Date: 2021
Required/Recommended/Optional: Optional

Assessments and Assignments

We will rely on a mix of classroom work, take-home exercises, a midterm, and a final research note.

Classroom Work

We will meet in person every Tuesday and Thursday from 1:00 p.m. to 2:15 p.m. in classroom MS 3.02.54. Some sessions will include lectures, some will include discussions, and some will include in-class exercises. Occasionally, you will also be asked to prepare material to share with the class. Participation in discussions and in-class exercises is expected, and students will receive a participation grade for each class. The

participation grade is primarily intended to encourage engagement and reward students for contributing meaningfully to the class. This includes active involvement in class discussions, group activities, and other in-class assignments. For classes where students are required to present material, the participation grade will also reflect their preparedness for the presentation.

Your participation grade will be based on the effort you demonstrate throughout the semester. This includes carefully reviewing the assigned readings, arriving prepared, and actively engaging in class activities. Do not assume that you will receive full marks automatically; each point must be earned through consistent and meaningful participation. Carefully review the assigned readings, come to class, participate in class discussions, and you will earn a good participation grade.

Take-home Exercises

Students will complete 4 exercises that will be due on weeks 4, 6, 11, and 13.

- I encourage work to be collaborative: I strongly suggest that you work in teams to code, but your exercises will be written up and submitted individually. If you work in teams, write that at the top of the exercise (i.e. “For this part of the code, I worked with student A and B”).
- Questions about coding and the assignment are encouraged, so please ask and answer the questions of your classmates if you can!
- Exercises will be distributed in an RMD (Rmarkdown document), and they will be submitted in a .doc format. Make sure that your code is appropriately annotated and correctly formatted so that it is easily readable. Partial credit will only be given if I can understand your code.

Research Note

One of the primary goals of the course is to enable students to leverage the tools of quantitative analysis to support their arguments and develop evidence-based insights. For the research note, students will apply quantitative methods to a topic of their choosing, ideally one they plan to explore further in their thesis. If students do not intend to use quantitative analysis in their thesis or cannot find data related to their area of interest, they will be provided a dataset to analyze. The research note consists of three assignments.

- Submit a one-page paper summarizing your research question and hypothesis, along with a descriptive figure and accompanying descriptive statistics (e.g., mean, median, percentages, or frequency distributions) that help address your research question. This assignment is due October 21st before the start of class.
- The final draft of the paper will be due by 11:59PM on Wednesday November 26th.
- An important component of research is the ability to effectively communicate your findings to an audience. As a result, students will present their final research note to the class during Week 15.

Midterm Exam

This course includes one in-person exam on October 9th. The midterm is designed to assess your ability to interpret and evaluate quantitative analysis, focusing on real-world applications of the concepts covered in class.

Activities and Grading

Activity	Quantity	%
Research Note: Figure Assignment	1	5
Research Note: Final Draft	1	20
Research Note: Presentation	1	5
Take Home Exercises	4 Exercises each worth 10%	40
Midterm	1	20
Class Participation		10
Total		**100%**

Distribution of Course Assignments, Their Quantity, and Contribution to Final Grade.

Grade Distribution and Letter Grade

Letter Grade	Grade Range
A	93-100
A-	90-92
B+	87-89

Letter Grade	Grade Range
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	0-59

Grade Distribution and Letter Grade

Guidelines for the Use of Generative Artificial Intelligence

Generative AI tools like ChatGPT and Gemini can be an excellent resource for producing complex R code, especially for those looking to achieve advanced functionality. However, relying on these tools too early in your learning process will limit your ability to understand how to effectively leverage and adapt R code for your specific needs. To illustrate the potential of these tools, we will occasionally use ChatGPT in class to generate advanced R code that would be challenging for beginners to create on their own.

For the R coding portions of take-home exercises, you are permitted to use ChatGPT to help identify and implement the correct code. This allowance applies only to take-home exercises and our in-class explorations of ChatGPT. However, you are not permitted to use ChatGPT to interpret your findings or the output of your code. Additionally, ChatGPT is not permitted for the R coding sessions on Coursera. These sessions are specifically designed to teach you the fundamental concepts of R and help you understand the mechanics of the code. This foundational knowledge will enable you to write more precise and effective prompts in the future and build the confidence needed to analyze and communicate your results.

Course Expectations & Policies

Attendance

- Students are responsible for any content they may have missed.

In Class Expectations

- You can use personal computers and tablets for class-related work. Phones are not allowed during class. Use of phones or computers for non-class related activities will deduct participation points.

- **Talking in Class**: I hope that we will have many enriching class discussions, and that you will feel welcome and excited to contribute. When you do contribute, please do so loudly so that others can hear you. Additionally, please be aware of how much you are speaking. I apply the **"stand up, step back"** guideline in all of my classes. This means that if you are not speaking, I may encourage you to contribute some comments, ideas, or suggestions ("stand up"), and if you are speaking a lot, I may encourage you to allow others the space to speak ("step back"). I will also not tolerate interruptions of any kind, particularly toward your fellow classmates. If you are nervous about speaking up in class, please come talk to me - we can brainstorm strategies to help you confidently contribute.

Emails

- I will respond to your emails as quickly as possible, but you should not expect an answer on the same day to an email sent on weekends or after 5:00 p.m. on any day. Importantly, I will not respond to emails regarding assignments in the 24-hour period before they are due or scheduled to take place. Please plan ahead, and I will be more than happy to assist.

Late Work

- Problem Sets: One 48-hour extension no questions asked. Additional late submissions will be penalized with 10% per day it is late
- Final Research Note: deduct 10% per day it is late
- Unless the absence is excused, there will be no opportunity for makeup exams.

Academic Freedom

Academic freedom[1] is a cornerstone of the University. Academic freedom in its teaching aspect is fundamental for the protection of the rights of the teacher in teaching and of the student to freedom in learning.[2] Each faculty member is entitled to full freedom in the classroom discussing the subject that the faculty member teaches.[3] The University of Texas at San Antonio will not penalize or discipline members of the faculty because of their exercise of academic freedom.

Along with this freedom comes responsibility. It is the responsibility of faculty members to ensure that topics taught are related to the classroom subject. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.[4] It is not the proper role of the university or any outside agency to attempt to shield individuals from ideas and opinions they find unwelcome, disagreeable, or even deeply offensive.[5] Engaging with new ideas and perspectives helps students grow intellectually and is beneficial to the educational process.

1. Statement adapted from Texas A&M University's Syllabus Statement Regarding Academic Freedom
2. 1940 Statement of Principles on Academic Freedom and Tenure

3. Board of Regents Rule 31004; HOP Policy 4.02
4. American Association of University Professors Joint Statement on Rights and Freedoms of Students
5. The Chicago Statement

Our Commitment to Inclusivity

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 promoting access for all. UTSA, a premier public research university, fosters academic excellence through a community of dialogue, discovery and innovation that embraces the uniqueness of each voice.

Syllabus Changes

The syllabus is subject to change at the instructor's discretion. Any changes/corrections to the course materials, assignment dates, or other updates will be communicated to the students ahead of time. You are responsible for checking Canvas for corrections or updates to the syllabus.

Course Schedule

For a list of important university-wide dates, review One Stop's academic calendar.

Week 1: Introduction

August 26th

August 28th

- Reading on Canvas

Week 2: Measurement

September 2nd

- Reading on Canvas

September 4th

- Llaudet and Imai: 1-1.7

Week 3: Describing Data

September 9th

- Reading on Canvas

September 11th

- Llaudet and Imai: 1.8-1.10; 3-3.4

Week 4: Evaluating Survey Data

September 16th

- Llaudet and Imai: 3.5-3.7
- **Assignment 1 Due at 12:59 P.M.**

September 18th

- Reading on Canvas

Week 5: Prediction with Regression

September 23th

- Llaudet and Imai: 4-4.41

September 25th

- Llaudet and Imai: 4.6-4.7; 4.9

Week 6: Evaluating Predictive Models

September 30th

- Weapons of Math Destruction

October 2nd

- **Assignment 2 Due at 12:59 P.M.**

Week 7: Midterm Week

October 7th

- Midterm Review

October 9th

- **Midterm**

Week 8: Causal Inference

October 14th

- **No Class Fall Break**

October 16th

- Llaudet and Imai: 2-2.4

Week 9: Methods of Causal Inference

October 21st

- Llaudet and Imai: 2.5-2.7
- **Data Description Assignment Due at 12:59 P.M.**

October 23rd

- Llaudet and Imai: 5-5.2

Week 10: Controlling for Confounders and Probability Basics

October 28th

- Llaudet and Imai: 5.3-5.4

October 30th

- Llaudet and Imai: 6-6.4

Week 11: Characterizing Uncertainty in Data

November 4th

- Llaudet and Imai: 6.5-6.8
- **Assignment 3 Due at 12:59 P.M.**

November 6th

- Llaudet and Imai: 7-7.2 (skip 7.2.2)

Week 12: Hypothesis Testing

November 11th

- Llaudet and Imai: 7.2.2, and 7.3-7.31

November 13th

- Llaudet and Imai: 7.3.2-7.4

Week 13: Evaluating Quantitative Explanations

November 18th

- Llaudet and Imai: 5.5-5.7
- **Assignment 4 Due at 12:59 P.M.**

November 20th

- Readings on Canvas

Week 14: Paper Workshop

November 25th

- Paper Workshop
- **Final Paper Due Wednesday November 26th at 11:59 P.M.**

Week 15: Paper Presentations

December 2nd

- Presentations

December 4th

- Presentations

Essential Student Information

- **Important:** Bookmark and visit the Common Syllabus Information webpage to find important and valuable resources about counseling services, transitory/minor medical issues, supplemental instruction, tutoring

services, academic success coaching, sexual harassment and sexual misconduct, campus safety and emergency preparedness, and the Roadrunner Creed.

- For technical requirements, support, and resources, visit Academic Innovation's Student Technical Support page.
- UT San Antonio provides reasonable accommodations to students via Student Disability Services. For more details on eligibility, policies, and requirements, please visit www.utsa.edu/disability or call (210) 458-4157.
- Your well-being is important. In addition to academic growth, life as a student can include many emotional experiences and opportunities. Being mindful of your own needs and available support can provide you with the tools to successfully navigate these experiences. Student support for well-being, including 24/7 mental health services, can be accessed from the Well-being at UT San Antonio site for students. If needed, we can schedule a meeting, and I can connect you to resources. You are not alone; I am available to help you find resources that might best meet your needs.
- Students at UT San Antonio are responsible for ensuring their work is consistent with UT San Antonio's standards for academic integrity. Students should review Section 203 of the UT San Antonio Student Code of Conduct for appropriate standards of academic integrity.
- UT San Antonio provides numerous services for students from counseling to tutoring to a food pantry. Visit Student Affairs Programs and Services and Student Success for more information.
- Visit the UT San Antonio Libraries and Museums site for access to journals, research tutorials, and tech gear you can borrow and to find your department's librarian.
- Enroll in the Roadrunner Success Playbook, an open-enrollment, self-paced, online hub in Canvas tailored to ensure you have the resources you need to excel at UT San Antonio.
- Follow Digital Learning Netiquette standards for your online communication activities.