UC San Diego

ECON/POLI 5D: Data Analytics for the Social Sciences

Course Syllabus
Winter 2021

Course Description	As data about individuals, organizations, and governments become increasingly available, social data analytics are transforming the way we think about the economy, politics, and society. This course will teach skills necessary to navigate the world of social data. We will learn basic principles of coding through the lens of popular social science data analytics softwares Excel, Stata, and R. While learning coding fundamentals, we will shed light on basic research design principles and statistical concepts that will help us grasp social questions that the era of a society governed by data presents us.
Instructor	**Leo Falabella** (lfalabel@ucsd.edu) Schedule your office hours appointment [redacted]
TA	**Shane Xuan** (xxuan@ucsd.edu) Office hours: Mondays 4-5 PM PST [redacted] Shane will stay in the room as long as needed so long as you enter the room before 5PM.

Learning Objectives

Upon completion of this course, students will be able to:

1. Demonstrate competency in the logic of research design.
2. Demonstrate competency in the manipulation and analysis of data sets.
3. Employ research design and data analysis skills to better understand political, economic, and social relationships.

Course Format

The course will be taught **entirely remotely.** All lectures will be pre-recorded and posted on Canvas, along with lecture slides. Because all lectures will be pre-recorded, we will not have lectures during scheduled meeting times. However, every Monday from 9-9:50am, your instructor (Leo) will hold a Q&A session via Zoom. These sessions will be recorded and posted on Canvas. Also, every Friday from 9-9:50am, your instructor and your TA (Shane) will lead a lab to help you master the software skills required to complete this course. While lab participation is part your grade, you can still earn participation credit by submitting a lab assignment by the Tuesday after the lab.

Lectures, Course Materials, and Assignments

Lectures, course materials, and assignment submissions will be posted on Canvas. All assignments will be turned in via Canvas.

https://canvas.ucsd.edu/courses/24275

Please be sure to explore and familiarize yourself with the course Canvas page.

Q&A Sessions and Labs:

- **Mondays at 9am:** Q&A session with Leo ([redacted])
- **Fridays at 9 am:** Lab session with Leo and Shane ([redacted])

Online Discussion Forum

Given the online format of this class, it will be helpful to share questions and answers on a platform that all students may access. In this class, we will use the **Piazza** online discussion board. Piazza is a question-and-answer platform that supports code formatting, embedding images, attaching files, and customized email frequencies.

https://piazza.com/ucsd/winter2021/econpoli5d

Be sure to use Piazza (instead of emailing the instructional team) when asking questions about course content. A question that you may have can be useful for another student. If you want to remain anonymous, you can hide your name from other students on Piazza.

Assignments, Projects, and Grading

The content of this course is cumulative, and each week builds upon the previous week. Therefore, it is immensely important that you keep up with the course and that you complete every homework and quiz on time. For every quiz and assignment, late submissions will lose 5% of the grade for every day late. No submissions more than three days late will be accepted.

Lab participation: On every Friday at 9am, we will have labs on Zoom to help you learn Excel, Stata, and R. To earn credit for participating in a lab, students only have to show up. If you do not show up to a lab, however, you can still earn credit for lab participation by submitting a lab assignment due the Tuesday after the lab. The assignment will be graded on a Complete/Incomplete basis, and the assignment does not have to be entirely correct. You will earn participation credit so long as your TA sees evidence that you made a reasonable effort to complete it.

Quizzes: Students will take five quizzes on Canvas that will assess your basic knowledge of the logic of research design. Each quiz will have 5-10 multiple-choice questions on the content taught in recorded lectures of the previous week. Quiz questions will be drawn randomly from a larger bank of questions, which will allow you take the same quiz multiple times—as many times as you want—so long as you complete it before the due date. Quizzes will be graded automatically, and only the highest grade on each quiz will count. Therefore, taking a quiz an additional time can only improve your score.

Homework assignments: There will be three homework assignments that will serve as periodic checks on your competency in the manipulation and analysis of data sets using Excel, Stata, and R. For each homework, you will submit a PDF with the results of some data analysis task and written interpretations of these results. All homework assignments will be submitted via the Gradescope tab on Canvas. If this is your first time using Gradescope, please watch this video and budget enough time to familiarize yourself with the user interface.

Final project: Students will complete an independent project that demonstrates mastery of the material taught during the quarter. The project will be due on **March 16 (Tuesday) at 12pm** but updates will be due throughout the quarter with homework submissions. Further, every student must schedule a one-on-one meeting with the instructor on week 9 for a check-in about the state of the project.

Summary of Grade Criteria

Assignment	Weight	Due Dates
Lab participation	10%	Fridays (weekly) 9am
Quizzes	10%	Tuesdays (weeks 2, 4, 5, 7, and 8) 12pm
Homework assignments	40%	Tuesdays (weeks 3, 6, and 9) 12pm
Final Project	40%	Tuesday (Finals week) 12pm
	100%	

Grading Procedures and Grade Appeal Policy

Quizzes: Quizzes will be made entirely of multiple-choice questions and they will be graded automatically. All quiz questions will be submitted into canvas by your instructor. Your instructor may make mistakes when submitting questions—a correct answer could be marked as incorrect, and vice-versa. If you believe that this is happening on your quiz, please take a screenshot and email it to me (lfalabel@ucsd.edu). I will review it and fix the quiz (and your grade) if needed.

Assignments: All other assignments will be graded by your TA. Your TA will be grading many assignments in a relatively short time window, and grading mistakes can happen. If you believe that there is a mistake in how your assignment was graded, please submit a regrade request via the Gradescope tab on Canvas. You can find instructions on viewing feedback and requesting regrades in this video. We will only consider regrade requests submitted within a week of you receiving your score.

A Typical Week in This Course

On a typical week, there will be a homework or a quiz due on Tuesday at 12pm. That assignment will be an assessment of the skills and knowledge accumulated until the previous week. This is how a typical week looks like:

Monday	Tuesday	Wednesday	Thursday	Friday
9am: Q&A session with Leo. **4-5pm:** Shane's office hours.	**12pm:** Homework or quiz due.			**9am:** Lab session with Leo & Shane.
Recommended: Finish the quiz or homework.	**Recommended:** Get started with lectures for the week.	**Recommended:** Finish watching lectures for the week.	**Recommended:** Get started with the quiz or homework.	**Recommended:** Continue working on the quiz or homework.

Course Materials and Tools

Technology Requirements

We will use three statistical software programs commonly used by social scientists: Excel, Stata, and R. Excel and Stata both require licenses that are available for free to UCSD students. R is open-source and free to everyone. Instructions on how to install the three software packages will be posted on Canvas.

Overall Course Expectations

What you can do to support your success in the course:	What the instructional team will do to support your success in the course:
Read the syllabus and stay current with course information	Be prepared and bring my enthusiasm for teaching to each session.
Keep up with lectures, labs, quizzes, and assignments, as each one builds on the previous one.	Respond to emails within one working day, and provide timely feedback on assignments / submissions.
Contribute to the learning environment with fairness, cooperation, and professionalism.	Establish a learning environment with fairness, cooperation and professionalism, and will take action if these principles are violated.
Treat your classmates, instructional assistants and myself honestly and ethically.	Treat you honestly and ethically, and will address any concerns you might have.
Commit to excel with integrity. Have the courage to act in ways that are honest, fair, responsible, respectful & trustworthy.	Uphold integrity standards and create an atmosphere that fosters active learning, creativity, critical thinking, and honest collaboration.
Manage your time, so you can stay on track with the course and complete tasks on time.	Only assign work that is vital to the course, and will work to meet the standard credit hour allotment for the course.
Communicate with me if you determine that a deadline cannot be met due to extenuating circumstances.	Consider requests for adjustments and will make reasonable exceptions available to all students when approved.

Course Schedule

Please note that the course schedule may be changed.

Week	Software	Research Design Topics	Software Skills	Deadlines
1	Excel	Theories and hypotheses	Introduction to Excel	
2	Excel	Variables and descriptive statistics	Measures of central tendency of dispersion and plots in Excel	Quiz 1 due on Tuesday at 12pm
3	Stata	Populations and samples	Introduction to Stata	Homework 1 due on Tuesday at 12pm
4	Stata	Hypothesis tests	Hypothesis tests in Stata	Quiz 2 due on Tuesday at 12pm
5	Stata	Regression analysis	Bivariate regression in Stata	Quiz 3 due on Tuesday at 12pm
6	R	Confounding and intervening variables	Introduction to R	Homework 2 due on Tuesday at 12pm
7	R	Random assignment and experiments	Data management and experimental data analysis in R	Quiz 4 due on Tuesday at 12pm
8	R	Multivariate regression	Plotting with GGPlot in R	Quiz 5 due on Tuesday at 12pm
9	R	Measurement and standardization	Rescaling in R, introduction to RMarkdown	Homework 3 due on Tuesday at 12pm
10	R	Tips, tricks, and best practices	Basic functions and loops in R, RMarkdown	
F				Final project due on Tuesday at 12pm