



Quantitative Methods in Political Science

POLITICAL SCIENCE 380

SPRING 2025

Class meeting time and location: Tue/Thu, 11AM-12:30 PM

Instructor:

Dr. Sally Sharif

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Course Description

Data analysis is quickly changing the way we understand and engage in politics, how we implement policy, and how organizations across the world make decisions. In this course, we will learn the fundamental principles of statistical inference and develop the necessary programming skills to answer a wide range of political and policy-oriented questions with data analysis. Who is most likely to win the upcoming presidential election? Do countries become less democratic when leaders are assassinated? Is there racial discrimination in the labor market? These are just a few of the questions we will work on in the course. The course will be centered around bite-size assignments that will help build coding and statistical skills from scratch. Students will leave the course equipped for work in any setting that requires a social scientific approach to data analysis, from policy non-profits to government, from Silicon Valley to Wall Street and beyond.

Prerequisites

1. Required: POLI 110 (Investigating Politics: An Introduction to Scientific Political Analysis)
2. Required: Either third year standing or the completion of POLI 100, 101, and 240

Course Learning Objectives

This course has 5 core learning objectives. Students will be able to:

1. Critically assess academic works that employ quantitative methods
2. Understand concept operationalization through variables and indicators
3. Clean, visualize, and analyze data with R
4. Fit models to data and conduct statistical inference
5. Communicate the results to both academic and non-academic audiences

Course Format

The format of the course will be two class sessions a week in person. On Tuesday every week, we read a chapter from the textbooks, learning about a statistical method. On Thursday, we read a journal article that employs that method. We replicate the results in class and discuss the results. The course also has weekly lab sessions with required attendance. The teaching assistants will be available during these sessions to help you work through examples, learn statistical software, and reinforce conceptual material.

Course Materials

1. Required textbook: Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press.
2. Required textbook: Michael A. Bailey. 2020. *Real Stats: Using Econometrics for Political Science and Public Policy*. Oxford, UK: Oxford University Press.
3. Required statistical software: R (www.r-project.org) and RStudio (www.rstudio.com). Available online for free.
4. Optional free textbook with examples in R: Hank C. Jenkins-Smith et al. 2017. *Quantitative Research Methods for Political Science, Public Policy and Public Administration (With Applications in R)*. Available online: <https://open.umn.edu/opentextbooks/textbooks/536>.
5. Optional free textbook for machine learning: Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani. 2023. *An Introduction to Statistical Learning with Applications in R*. Springer. Available online: <https://www.statlearning.com/>.
6. Optional free R resource: Wickham, Hadley, Mine Çetinkaya-Rundel, and Garrett Golemund. 2023. *R for Data Science*. O'Reilly Media, Inc. Available online (also in Spanish, Italian, and Turkish): <https://r4ds.hadley.nz/>.

Course Assignments, Due Dates and Grading

Students are responsible for material covered in class discussions as well as in the assigned readings. Regular attendance in class is expected. Grades will be determined on the basis of the following:

Weekly tests (40%)

I believe in continuous assessment and reinforcement of learning. This course tests knowledge of the readings and attention to the lecture through weekly multiple-choice tests via Canvas. Students should have access to a computer or phone during class to do the test. The TAs discuss the answer to these tests in the weekly lab sessions.

Midterm exam (30%)

The midterm exam is a closed-book exam based on class lectures and readings. I post discussion questions for every class on Canvas. The questions on the midterm exam will be from these questions. The TAs discuss the answer to these questions in the weekly lab sessions. Answers on the exam should reflect understanding of the material on the syllabus.

Replication assignment (10%)

Final assignment (20%)

Regrading Policy

Regrading of marked work by the teaching assistant will only take place if accompanied by a one-page memo indicating in detail the grounds for regrading; students should note that a regrading of a paper or exam may result in the lowering of grade upon further review. If this procedure does not resolve the matter, it may be appealed to the professor, who, again, may raise or lower the grade upon further review.

Lecture Outline and Readings

Week 1 The World through a Quantitative Lens

January 7

Introduction to the syllabus: no readings required

January 9

- Michael A. Bailey. 2020. *Real Stats: Using Econometrics for Political Science and Public Policy*. Oxford, UK: Oxford University Press. [Chapter: “The Quest for Causality,” 1-22]

Lab session

- Introduction to R

Week 2 Variables and Measurement

January 14

- Jon Gerring. 2012. *Social Science Methodology: A Unified Framework*. [Chapter: “Measurement,” 155-184]

January 16

- Ines A. Ferreira. 2017. “Measuring State Fragility: A Review of the Theoretical Groundings of Existing Approaches.” *Third World Quarterly* 38(6): 1291-1309.

Lab session

- Michael A. Bailey. 2020. *Real Stats: Using Econometrics for Political Science and Public Policy*. Oxford, UK: Oxford University Press. [Chapter: “Math and Probability Background,” 538-541]

Week 3 Data Description and Visualization

January 21

- Hank C. Jenkins-Smith et al. 2017. *Quantitative Research Methods for Political Science, Public Policy and Public Administration (With Applications in R)*. [Chapter: “Exploring and Visualizing Data, 26-40]

January 23

- Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press. [Chapter: “Introduction,” 8-25]

Lab session

- Wickham, Hadley, Mine Çetinkaya-Rundel, and Garrett Golemund. 2023. *R for Data Science*. O'Reilly Media, Inc. [Chapter: Data Visualization]

Week 4 Bivariate Regression

January 28

- Michael A. Bailey. 2020. *Real Stats: Using Econometrics for Political Science and Public Policy*. Oxford, UK: Oxford University Press. [Chapter: “Bivariate OLS,” 45-57]

January 30

- Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press. [Chapter: “Predicting Outcomes Using Linear Regression,” 98-123]

Lab session

- Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press. [Chapter: “Predicting Outcomes Using Linear Regression,” 126-128]

Week 5 Multivariate Regression

February 4

- Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press. [Chapter: “Estimating Causal Effects with Observational Data,” 129-153]

February 6

- Kristian Vrede Skaaning Frederiksen. 2024. “Young People Punish Undemocratic Behaviour Less Than Older People. *British Journal of Political Science* 54(3): 1014–22.
- Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press. [Chapter: “Predicting Outcomes Using Linear Regression,” 153-158]

Lab session

- Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press. [Chapter: “Predicting Outcomes Using Linear Regression,” 159-161]

Week 6 Hypothesis Testing with Regression

February 13

- Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press. [Chapter: “Quantifying Uncertainty,” 196-224]

February 13

- Cohen, Dara Kay, and Ragnhild Nordås. 2015. “Do States Delegate Shameful Violence to Militias? Patterns of Sexual Violence in Recent Armed Conflicts.” *The Journal of Conflict Resolution* 59(5): 877–98.

Lab session

- Elena Llaudet and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton, NJ: Princeton University Press. [Chapter: “Quantifying Uncertainty,” 226-229]

Acknowledgement

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the Musqueam people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on in their culture, history, and traditions from one generation to the next on this site.

General Academic Policies

Regular attendance in class meetings is expected. All assignments must be completed and handed in.

Read the university calendar so that you are aware of no-penalty drop dates, requirements for medical authorization (to defer an exam, for example) and other procedures that may affect you.

Students who wish to appeal grades assigned to their academic work may do so. The initial appeal should be made to the course instructor. If the student remains unsatisfied with this process, he/she may proceed to the head of the department or further to a formal committee established in accordance with University policies.

Religious holidays – UBC permits students who are scheduled to attend classes or write examinations on holy days of their religions to notify their instructor in advance of these days and their wish to observe them by absenting themselves from class or examination. Instructors provide opportunity for students to make up work or examinations missed without penalty. (Policy # 65.)

UBC is committed to the academic success of students with disabilities. UBC's policy on Academic Accommodations for students with disabilities aims to remove barriers and provide equal access to University services, ensure fair and consistent treatment of all students, and to create a welcoming environment. Students with a disability should first meet with an Access and Diversity advisor to determine what accommodations/services you are eligible for.

Academic Integrity and Responsibility

As a member of this class, you are responsible for contributing to the course objectives through your participation in class activities and your work on essays and other projects. In the process of coming into your own as an independent, responsible participant in the academic community, you are encouraged to seek advice, clarification, and guidance in your learning from your instructor. If you decide to seek help beyond the resources of this course, you are responsible for ensuring that this help does not lead you to submit others' work as your own. If an outside tutor or other person helps you, show this policy to your tutor or helper: make sure you both understand the limits of this person's permissible contribution. If you are uncertain, consult your instructor.

Academic communities depend on their members' honesty and integrity in representing the sources of reasoning, claims, and wordings that appear in their work. Like any other member of the academic community, you will be held responsible for the accurate representation of your sources: the means by which you produced the work you are submitting. If you are found to have misrepresented your sources and to have submitted others' work as your own, penalties may follow. Your case may be forwarded to the Head of the department, who may decide that you should receive zero for the assignment. The Head will report your case to the Dean's Office, where the report will remain on file. The Head may decide, in consultation with your instructor, that a greater penalty is called for, and will forward your case to the Dean's Office. After an interview in the Dean's Office, your case may be forwarded to the President's Advisory Committee on Academic Misconduct. Following a hearing in which you will be asked to account for your actions, the President may apply penalties including zero for the assignment; zero for the course; suspension from the university for a period ranging from 4 to 24 months; a notation on your permanent record. The penalty may be a combination of these.

Academic communities also depend on their members' living up to the commitments they make. By enrolling in this course, you make commitments to an academic community: you are responsible for meeting deadlines, and attending class and engaging in class activities. If you find that you cannot meet a deadline or cannot participate in a course activity, discuss your situation with your instructor before the deadline or before your absence.

Like any academic author submitting work for review and evaluation, you are guaranteeing that the work you submit for this course has not already been submitted for credit in another course. Your submitting work from another course, without your instructor's prior agreement, may result in penalties such as those applied to the misrepresentation of sources.

COVID-19 Safety

If you are sick, it is important that you stay home. Complete a self-assessment for COVID-19 symptoms here: <https://bc.thrive.health/covid19/en>. In this class, the marking scheme is intended to provide flexibility so that you can prioritize your health and still succeed.

If you miss class because of illness: You will be provided the opportunity to earn participation points for that week by scheduling a zoom meeting with me to discuss the week's readings and themes at a later date.

If I (the instructor) am feeling ill: If I am unwell, I will not come to class. I will make every reasonable attempt to communicate plans for the class as soon as possible by email. If I am well enough to teach, but am taking precautions to avoid infecting others, we may hold the class online. If this happens, you will receive an email informing you how to join the class.

Reach out and ask for help if you need it

University students often encounter setbacks from time to time that can impact academic performance. If you run into difficulties and need assistance, I encourage you to contact me by email. I will do my best to support your success during the term. This includes identifying concerns I may have about your academic progress or wellbeing through Early Alert. With Early Alert, faculty members can connect you with advisors who offer student's support and assistance getting back on track to success. Only specialized UBC advisors are able to access any concerns I may identify, and Early Alert does not affect your academic record.

For more information: <https://facultystaff.students.ubc.ca/systems-tools/early-alert>

For information about addressing mental or physical health concerns, including seeing a UBC counselor or doctor, visit: <https://students.ubc.ca/health-wellness>

Respectful University Environment

UBC recognizes that “the best possible environment for working, learning and living is one in which respect, civility, diversity, opportunity and inclusion are valued.” The full *UBC Statement on Respectful Environment for Students, Faculty and Staff* can be found at <http://www.hr.ubc.ca/respectful-environment/files/UBC-Statement-on-Respectful-Environment-2014.pdf>. Students should read this statement carefully and take note of both the protections and the responsibilities that it outlines for all members of the UBC community. Students should also review the Student Code of Conduct, at: <http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,54,750,0>

This course values frank discussion, healthy debate, and the free and respectful exchange of ideas. Students are welcome to voice and defend their views, which may differ from those of other students or of the instructor. However, disrespectful behavior, including bullying and harassment, will not be tolerated. The instructor will be professional and respectful in all their exchanges with students, and students will exercise similar professionalism and respect in their interactions with each other and with the instructor.

I expect us all to respect the preferred personal pronouns of all students. Using the right pronoun, like using someone's correct name, is a way to show respect. Please advise me of your pronoun preference early in the semester so I can respond as appropriate.

If you have any concerns about the class environment, please raise them with the instructor. You also have the options of contacting the Head of the Political Science Department, UBC's Equity and Inclusion Office (<http://equity.ubc.ca>), or the UBC Ombudsperson for Students: <https://ombudsoffice.ubc.ca>

Equity and Harassment

UBC is committed to equity (including but not limited to gender equity) and fostering a safe learning environment for everyone. All peoples should be able to study, work, and learn in a supportive environment that is free from sexual violence, harassment, and discrimination. UBC's Policy #3 on Discrimination and Harassment defines harassment as:

“unwanted and unwelcome attention from a person who knows, or ought to know, that the behaviour is unwelcome. Harassment can range from written or spoken comments to unwanted jokes, gifts, and physical assault, and may be accompanied by threats or promises regarding work or study opportunities and conditions. Harassment can be either a single incident or a series of related incidents.” Such behavior is not acceptable and will not be tolerated at UBC. If you or someone you know has encountered sexual violence or harassment, you can find confidential support and resources at the AMS Sexual Assault Support Centre, (SASC), and the Equity and Inclusion Office. The SASC is an all-genders service that serves the UBC-Vancouver campus community and is committed to creating a safer campus community, free from sexualized violence. Their work is informed by feminism, anti-oppression and recognition of intersectionality. The Equity and Inclusion Office is committed to fostering a community in which human rights are respected and equity and diversity are integral to university life.

Resources are available at:

Sexual Assault Support Centre, (SASC)
249M, Student Union Building, UBC
604-827-5180
sasc@ams.ubc.ca
<http://amssasc.ca>

Equity and Inclusion Office
2306 – 1874 East Mall (Brock Hall)
604.822.6353
equity@equity.ubc.ca
<http://equity.ubc.ca>