

Political Science 3014W | Spring 2025
Research Strategies in Public Policy

Brooklyn College

Instructor: Sevdenur Koru

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Class Meetings: Monday 11:00AM-1:30PM 3410 at WJ

Wednesdays 11:00AM-1:00PM 3410 at WJ (Lab)

Office Hours: Mondays and Wednesdays, 9:30AM to 11:00AM or by appointment

Sign up for office hours: <https://calendly.com/sevdenur-koru/30min>

In-person or Zoom.

Course Description

Anthropological, psychological, political, social, and economic arguments and knowledge frequently depend on the use of numerical data. An anthropologist might examine how population differences in genes explain population differences in health outcomes; a psychologist might hypothesize that I.Q. is attributable to environmental or genetic factors; a politician might claim that handgun control legislation will reduce crime; a sociologist might assert that social mobility is more limited in the United States than in other countries, and an economist might declare that globalization lowers the incomes of U.S. workers. How can we evaluate these issues and arguments? Using examples from anthropology, psychology, sociology, political science, and economics, students will examine how social science methods and statistics help us understand the social world. The goal is to become critical consumers of quantitative material that appears in scholarship, the media, and everyday life.

This course has two primary goals: (1) to provide students with analytical tools that will help them to understand how political scientists do research, and (2) to improve students' ability to pose and answer research questions on their own.

Course Learning Goals

- Understand quantitative models that describe real-world phenomena and recognize limitations of those models;
- Perform simple mathematical computations associated with a quantitative model and make conclusions based on the results;
- Program statistical software to perform basic data analysis;
- Recognize, use, and appreciate mathematical thinking for solving problems that are part of everyday life;
- Understand the various sources of uncertainty and error in empirical data;
- Retrieve, organize, and analyze data associated with a quantitative model; and
- Communicate logical arguments and their conclusions.

Course Materials

The required course materials for this course are open educational resources and are available at no cost to students.

Course Website: <https://pols3014.common.gc.cuny.edu/>

Course Textbook: Navarro, Danielle. (2017; 2025). *Learning statistics with R: A tutorial for psychology students and other beginners*. (Version 0.5.2;6.2). (This textbook is free)

1. Manifold Version: <https://cuny.manifoldapp.org/read/learning-statistics-with-r-a-tutorial-for-psychology-students-and-other-beginners-version-0-6>
2. PDF Version: <https://compcogscisydney.org/lsr/lsr-0.5.2.pdf>
3. You will learn how to use a data analysis software called “R” to analyze data, which is also free. We are going to use “RStudio” as well as a website called “[kaggle](https://www.kaggle.com)” in order to access R online.
4. Labs and Problem Sets: <https://www.kaggle.com/sevdenurkoru/code>

Course Requirements

Math Skills. Our focus will be on the logic of data analysis and will mostly be taught at a conceptual level. I assume that you have done no prior work in statistics.

Mathematical knowledge at the level of high school algebra is expected. I expect you to learn how to read mathematical notation (which we will cover in lectures and labs).

Problem Sets. Learning statistics is like learning a foreign language. It takes time, repetition, and lots of practice. Consequently, you will be asked to complete a problem set each week. These assignments will give you an opportunity to apply (and even extend) concepts discussed in lectures and labs. All problem sets will be due Tuesday

night of the relevant week. At the end of the semester, I will drop the lowest-graded problem set.

Exams. The topics learned in this class build on one another – understanding early material will be essential for grasping later material. For this reason, there will be three examinations throughout the semester (two midterm exams plus a cumulative final) in addition to the problem sets. Regular assignments should give you a chance to hone your skills as well as identify your areas of strength and weakness. Students who are happy with their grade by the end of the class can choose to skip the final, while those who want to improve their grade have the option of taking it.

Final Project. After the first exam, you will start working on the first step of your final project. You will formulate a social science research question, develop a hypothesis that answers this question, collect quantitative data necessary to test your hypothesis, analyze the data using R Studio, write up the results in a brief research paper, and present it in our last lab meeting. You will receive further instructions on the final project along the way.

Grade Breakdown:

Exams (15% each)	30%
Problem Sets	25%
Final Exam*	15%
Group Paper	20%
Participation	10%
Total	100%

**If you opt-out of taking the final, you will receive the average of the two midterm exams for your final exam grade.*

Grading Scale

Your final grade in this course will reflect the sum of the previous components.

94-100%	A	74-76%	C
90-93%	A-	70-73%	C-
87-89%	B+	67-69%	D+
84-86%	B	64-66%	D
80-83%	B-	60-63%	D-
77-79%	C+	59% and below	F

Assignment submission: **I almost always use Blackboard to post for posting any course materials and assignment submissions.** I do not accept email submissions because that way, I cannot provide feedback efficiently. **Make sure your email address is updated on Blackboard, and check your accounts regularly.**

Participation. I expect students to view all of the lectures and labs, and turn in assignments on time. If you want to do well, please allow a sufficient amount of time to understand the material and get help during office hours to complete your work. **Please do not wait until the last minute to do problem sets.**

E-mail:

For all class-related emails, expect a response within 24 hours during weekdays. I often do not check my email on weekends, so expect a reply on the next business day. Your email should be written in a formal, business letter-like structure, with a salutation, formal language, proper punctuation, and closing. In addition to showing respect via email, this will be good practice for when you enter the professional world.

Late Work:

Submitting late work will affect the flow of your learning and evaluation. If you anticipate that you will have to submit an assignment late, please do send me an email before the deadline. If you fail to do so, I will not accept your submission. I have a grace period of 1 day and you don't have to contact me if you'll be submitting the assignment within the next day of the deadline.

As a general rule, I do not give make-up exams. In extreme circumstances, I will make an exception, but in order to be considered for an exception, you must contact me **before the exam**. Missed exams will receive no credit, unless arrangements are made with me before the exam date.

Course Readings

I strongly recommend following the free textbook assigned for the course. Even though we won't be following it directly, it will help you understand the lectures better.

There are no required book purchases for this course. All mandatory readings will be posted on the Course Site on Blackboard in .pdf format. You must complete the readings listed for each day prior to that lecture.

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Course Policies

Integrity

The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy can be found at www.brooklyn.edu/policies. If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member **MUST** report the violation. Students should be aware that faculty may use plagiarism detection software.

Acceptable and Unacceptable Uses of Artificial Intelligence

Other than the Response Paper Using AI assignment, the use of generative AI tools (e.g. ChatGPT, Dall-e, etc.) is permitted in this course for the following activities:

- Brainstorming and refining your ideas;
- Fine tuning your research questions;
- Finding information on your topic;
- Drafting an outline to organize your thoughts; and
- Checking grammar and style.

The use of generative AI tools is not permitted in this course for the following activities:

- Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts assigned to you or content that you put into a Zoom chat.
- Completing group work that your group has assigned to you, unless it is mutually agreed upon that you may utilize the tool.
- Writing a draft of a writing assignment.
- Writing entire sentences, paragraphs or papers to complete class assignments. You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content).

Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty. When in doubt about permitted usage, please ask for clarification.

Brooklyn College Commitments and Support

Disability services: In order to receive disability-related academic accommodations students must first be registered with the Center for Student Disability Services (CSDS). Students who have a documented disability or suspect they may have a disability (physical or mental condition which substantially limits one or more major life activity) are invited to call the Center at (718) 951-5538 or visit us in 138 Roosevelt Hall. If you have already registered with the CSDS and submitted necessary forms, you will receive your course accommodation letter to provide to your professor and these specific accommodations can be discussed when appropriate.

Food Pantry: Brooklyn College's Food Pantry offers healthy food selections to currently enrolled Brooklyn College students. All information about applications will be kept confidential. Open Wednesdays 11AM-5PM, 312 Student Center. Email civicengagement@brooklyn.cuny.edu or call 718.951.5059.

Health Clinic: Open for in-person visits, particularly for prescriptions and the flu shot. Located in 114 Roosevelt Hall, the Health Clinic provides an inviting and respectful environment. To make an appointment, call 718.951.5580 or come in. All visits to the Health Clinic are confidential.

Immigrant Student Success Office: With the Political Science Department, I support the rights of undocumented students to an education. If you have any concerns in that regard, feel free to discuss them with me, and I will respect your wishes concerning confidentiality. For resources and support, please check-out Brooklyn College's Immigrant Student Support Office, website: [Immigrant Student Success Office](https://libguides.brooklyn.cuny.edu/DACA) email: isso@brooklyn.cuny.edu Instagram: @issobc or visit: <https://libguides.brooklyn.cuny.edu/DACA>

International Student and Scholar Services: keisha.wilson@brooklyn.cuny.edu (718) 951-4477 and Christina.Lynch@brooklyn.cuny.edu (718) 951-5696

Library Services: <https://library.brooklyn.cuny.edu/>

Land Acknowledgement: The land on which we gather is the traditional and unceded territory of the Lenape. We, the Brooklyn College community, acknowledge that academic institutions, indeed the nation-state itself, was founded upon and continues to enact exclusions and erasures of Indigenous Peoples and we celebrate the West Indian/ Afro-Caribbean heritage of the contemporary Flatbush community.

Magner Center: Register with the Magner Center through the Career tab of BC WebCentral, to receive information about events and job opportunities or call 718.951.5696. The Magner Career Center supports you in gaining the requisite job search tools, knowledge, skills and opportunities essential to fulfill your career aspirations.

Personal Counseling Service: Brooklyn College personal counseling services include psychologists and social workers to assist you with personal problems. Emergency consultations and referrals to outside services are also provided. All services are free and confidential. Phone: 718.951.5363. Email: bcpersonalcounseling@gmail.com

Sexual and Gender-Based Harassment, Discrimination, Names, and Pronouns:

Brooklyn College is committed to fostering a safe, equitable, and productive learning environment. Students experiencing any form of prohibited discrimination or harassment, on or off campus, can find information about the reporting process, their rights, specific details about confidentiality, and reporting obligations of Brooklyn College employees at the [Office of Diversity and Equity](#), 2147 Boylan Hall, ph. 718.951.4128. Confidential resources on campus include the Office of Personal Counseling, [The Women's Center](#), and the Health Clinic. During and outside of class, we all have the right to be called by the name we go by and by the pronoun(s) we use. For your reference, Brooklyn College has a vibrant and welcoming [LGBTQ+ Resource Center](#) for students, faculty, & staff.

Student Emergency Grants: The [Carroll and Milton Petrie Student Emergency Grant Fund](#) provides eligible students facing short-term, nonrecurring emergencies with a one-time grant to assist you now and help you finish your degree.

Please read the Brooklyn College Student Handbook for detailed information on many other policies and resources:

http://www.brooklyn.cuny.edu/web/off_dosa/Student_Handbook.pdf

Course Calendar

Below is the plan for the course. It is your responsibility to keep track of all dates, assignments, and changes (which will be announced in class). Readings should be done *before* the class for which it is listed.

Reading assignments come from Navarro. Notice that you will be bouncing around a bit – we will not be reading chapters in order and sometimes we will only draw on particular sections in a chapter. This is because there are many different ways one can go about learning statistics, and I have never found a textbook that lines up with my preferred order!

Unit	Week	Topic	Reading Aid	Assignment
Introduction	Week 1	Introduction	Chapter 1: Why do	Downloading RStudio,

	<u>Jan 27-Feb 3</u>	<p>The Basics of Quantitative Data and Why do I need to learn R?!</p> <p><i>Lab: Getting started in R Studio</i></p>	<p>We Learn Statistics Chapter 3: Getting Started With R; Chapter 4: Further R Concepts</p>	Signing up for Kaggle
UNIT 1: Foundational Concepts	<u>Week 2 Feb 5-10</u>	<p>Quantitative Measures Tables, bar graphs, and histograms</p> <p><i>Lab: Introduction to Graphing in R Studio</i></p>	<p>Chapter 2.2: Scales of Measurement. Chapter 6.1, 6.3, 6.7: Drawing Graphs</p>	Problem Set #1
	<u>Week 3 Feb 18-19</u>	<p>Descriptive statistics for continuous distributions (Central Tendency, Variance, Skewness, Kurtosis, Box Plots)</p> <p><i>Lab: Summary statistics in R Studio</i></p>	<p>Chapter 5.1-5.3: Descriptive Statistics</p>	Problem Set #2
	<u>Week 4 Feb 24-26</u>	<p>Research design (validity, statistical inference, and types of research)</p> <p><i>Lab: Manipulating data in R Studio</i></p>	<p>Chapters 7: Pragmatic Matters; Chapter 8: Basic Programming</p>	Problem Set #3
	<u>Week 5 Mar-3-5</u>	<p>Statistical inference for one variable, Part I (random</p>	<p>Chapters 9; 10.1:</p>	Problem Set #4

		sampling, probability introduction) <i>Lab: Review Sampling and Probability</i>	Introduction to Probability; Samples and Sampling	
	Week 6 <u>Mar 6</u>	Statistical inference for one variable, Part II (z-scores, central limit theorem, and confidence intervals) <i>Lab: Calculating Confidence Intervals in R Studio</i>	Chapters 10.2-10.6 ; Estimating unknown quantities from a sample Chapter 5.6 : Standard Scores	Exam #1 Review Sheet (Problem Set #5)
	Week 7 <u>Mar 10-12</u>	Review March 10 and Exam <i>No Lab</i>		Exam #1 (March 12)
	Week 8 <u>Mar 17-19</u>	Describing relationships between two variables (crosstabulations, scatterplots, line graphs, multiple boxplots) <i>Lab: Describing bivariate relationships in R Studio</i> <i>Lab: Final Assignment First Step & Data Sources for Final Project</i>	Chapter 6.5.3 ; 6.6; 7.1 . Drawing multiple boxplots; Tabulating and cross-tabulating data	Problem Set #6
UNIT 2: Correlation,	Week 9	Correlation versus Causation (causal inference, research	Chapters 2 ; A Brief	Problem Set #7

Causation, and Statistical Inference	<u>Mar 24-26</u>	design redux, hypothesis testing, comparing two means: t-test and Cohen's d) <i>Lab: Comparing two means in R Studio</i>	Intro to Research Design : A B(again!); 11: Hypothesis Testing; 13: Comparing Two Means	
	Week 10 <u>Apr 2-9</u>	Hypothesis testing with crosstabulations (conditional probabilities, chi-square, and Cramer's V) <i>Lab: Hypothesis testing with crosstabulations in R Studio</i>	Chapter 12-12.4: Categorical data analysis	Problem Set #8
	SPRING BREAK (April 12-20)			
	Week 11 <u>April 21-23</u>	Hypothesis testing with two continuous variables, Part I (Introduction to Linear Regression) <i>Lab: Linear Regression in R</i>	Chapter 15-15.2: Linear Regression Model	Problem Set #9
	Week 12 <u>Apr 28-30</u>	Hypothesis testing with two continuous variables, Part II (tests for coefficients, multiple regression, model fit)	Chapter 15.3-1.5 Interpreting the Estimated Model	Problem Set #10
	Week 13 <u>May 5-7</u>	Qualitative Research Methods Overview		Exam #2 Review Sheet (PS #11)

		<i>Lab: Final Research Project Presentations</i>		Final Project Presentations (May 5)
	Week 14 <u>May 12-14</u>	Exam #2 Review May 12 and Exam 2		Exam #2 (May14)
		Final Exam TBA		

Important Dates

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| - Saturday, January 25 | First day of Spring 2025 classes |
| - Wednesday, January 29 | No Classes Scheduled (College Open) |
| - Friday, January 31 | Last Day to Add or Swap a Course |
| - Wednesday, February 12 | College Closed |
| - Monday, February 17 | College Closed |
| - Tuesday, February 18 | Conversion Day – Classes follow a Monday schedule |
| - Thursday, March 6 | Conversion Day – Classes follow a Wednesday schedule |
| - Monday, March 31 | No Classes Scheduled (College Open) |
| - Tuesday, April 1 | Last day to withdraw from a course with a “W” grade |
| - Saturday, April 12 <i>thru</i>
Sunday, April 20 | No Classes Scheduled – Spring Recess (College Open) |
| - Thursday, May 15 | Last Day of Undergraduate Classes |
| - Friday, May 16 | Final Exams Begin |
| - Thursday, May 22 | Final Exams End / End of Spring Semester |