

GOVT 310.005 Introduction to Political Research

Wednesday 2:30PM-5:20PM

Kerwin Hall 205

Spring 2026

Instructor: David Miller

- Email address: dmiller@american.edu
- Website: <http://www.davidryanmiller.com/>
- Office location: Kerwin Hall 219
- Office hours (reserve via Calendly):
 - Wednesday 10:00AM-11:00AM (in-person)
 - Contact for appointments otherwise

Teaching Assistant (meetings by appointment):

- Ellen Kamalyan (ek5837a@american.edu)

Course Description

In an increasingly data-driven world, understanding and utilizing quantitative research methods have become increasingly important skills for not only those involved in politics, but also for members of the polity who want to engage in civic life. This course is designed to introduce students to the social scientific process and basic quantitative methods that political scientists use to improve our understanding of political life. In our first few sessions, we consider how political scientists develop and test theories and the role that quantitative methods play in the social scientific process. Then, we examine how political scientists use quantitative data to describe and draw inferences about the world. In doing so, students will be instructed in the use of R, an open-source statistical software increasingly used by political scientists and those in cognate fields. Along the way, we will also read and discuss contemporary political science articles to gain a more complete understanding of how quantitative research is conducted. Students will demonstrate competency in the skills acquired throughout the semester by completing an original research paper that uses quantitative methods to test a falsifiable hypothesis. At the end of the class, students should be able to critically assess data-based political arguments and apply quantitative techniques to real-world data.

Learning Objectives

Students who complete this course successfully will be able to:

1. Execute an original research project dealing with an empirical political problem by using an appropriate quantitative methodology
2. Produce a literature review on a subject that summarizes and analyzes the state of knowledge in political science on a research question
3. Select and apply tests appropriate to different types of data

4. Analyze and interpret the results of the tests
5. Produce a well-written and thorough final research paper that includes a statement of the research question, literature review, study design and analysis and conclusions
6. Present their research orally to the class and a panel of political science faculty

This course satisfies the learning outcomes required of AU Core Quantitative Literacy II (Q2). Students who successfully complete this course will be able to:

- Translate real-world questions or intellectual inquiries into quantitative frameworks
- Select and apply appropriate quantitative methods or reasoning
- Draw appropriate insights from the application of a quantitative framework
- Explain quantitative reasoning and insights using appropriate forms of representation so that others could replicate the findings

Required Texts, Materials, or Equipment

In order to foster an equitable learning environment, all required materials for this course are open educational resources (OERs) or otherwise free-to-access. The textbooks from which required and recommended readings will be drawn are:

- Çetinkaya-Rundel, Mine and Hardin, Johanna. *Introduction to Modern Statistics*. [Available on OpenIntro](#).
- Cunningham, Scott. *Causal Inference: The Mixtape*. [Available online here](#).
- Wehde, Wesley, Jenkins-Smith, Hank, Ripberger, Joseph, Copeland, Gary, Nowlin, Matthew, Hughes, Tyler, Fister, Aaron, and Davis, Josie. *Quantitative Research Methods for Political Science, Public Policy and Public Administration for Undergraduates: 1st Edition With Applications in R*. [Available at ETSU's Digital Commons](#).

In the course schedule below, readings marked with asterisks (*) are **required**, while those without asterisks are *recommended* but not required.

In addition, we will use R and RStudio to complete all statistical programming tasks. We will walk through installation and basic usage of these software programs in the first weeks of class.

Course Structure

This course has two main tracks of assessment—those concerning quantitative research skills (Quantitative Skills), and others concerning each student's research project (Research Project). Quantitative Skills assessments will be completed in small groups of 3-4 students, while Research Project assessments will be completed individually

- ***Quantitative Skills***

- I will use students' self-reports of their proficiency in and comfort with mathematical and statistical concepts and computer programming skills to create balanced groups. I will assign groups before the first problem set is distributed. These groups will remain fixed throughout the semester unless extraordinary circumstances require me to modify them (e.g., disparities in group size caused by students entering/leaving the class, evidence of severe imbalance in aptitude across groups, etc.).

Through working in groups, it is expected that all group members contribute equitably to class assignments such as labs and problem sets. What "equitable" looks like might differ across groups and stages of the class. For instance, groups that divide the individual problems in a problem set among their members may be just as equitable as groups that divide tasks within problem sets (e.g., performing analyses, writing explanations, etc.) among their members.

Whatever a group's arrangement, it is expected that all members contribute equal effort; freeriding will not be tolerated by me or by your group members. At the conclusion of the semester, I will ask everyone to evaluate their group members contributions to their group, and these evaluations will count towards 10% of students' grades. I encourage students to try to resolve any issues within their groups themselves; however, if problems within your group persist, please contact me and I may step in.

- ***Research Project***

- Students are required to complete individual, original research projects that utilize the quantitative skills covered in this course. The research project will be completed through a series of intermediate assignments, culminating in an oral presentation and final paper at the end of the semester.

Assignments and Grading

Course grades will be determined by students' performance on the following assignments and tasks:

- Labs (15%): Each group will complete a weekly in-class lab assignment. These labs will take place immediately following lecture and are intended to help students to learn the concepts covered by utilizing them and prepare students for problem sets (which will resemble the labs). These labs will be evaluated on a pass/fail basis; in order to pass, the group needs to demonstrate that they completed each of the questions in the lab assignment correctly. *If a student is not present in class, he/she will not receive credit for*

his/her group's completion of the in-class lab and must complete the lab on his/her own and submit it for evaluation before the following week's class.

- Problem sets (15%): Each group will complete a series of problem sets. Problem sets will be distributed during class and will be due the following Wednesday before the start of class via Canvas. All problem sets must be completed in R Markdown and students must submit both the .rmd file and the compiled document (either as a .pdf or .html file). Students are expected to contribute equitably to their group's problem sets, and all students in a given group will receive the same grade for each completed problem set. If the instructor has reason to believe that a student did not contribute equitably to the group's problem set in a given week, the student will receive no credit for the problem set.
- Article outlines (10%): Five times during the semester, students must prepare and submit an outline of an assigned research article. In preparing their outlines, students will be asked to: identify the research question; describe the theory the author develops to offer an answer to that question; state the authors' hypotheses; describe the data and methods the author uses to test their hypotheses; and report the authors' results. More details on the format and expectations for these article summaries will be provided in class.
- Peer evaluations (10%): At the end of the semester, I will ask everyone to evaluate their group members' contributions to the group's assignments, such as their attentiveness to group communications and their level of effort. These peer evaluations will be confidential.
- Research Project (50%): Each student will complete a series of assignments that will ultimately produce an individual, original research project. A separate document will be distributed during the first week of class that outlines for students the intermediate assignments that count towards the research project, the expectations for those assignments, and the manner in which those assignments will be weighted to count towards the ultimate Research Project grade.
- Extra credit (?): I reserve the right to provide opportunities for extra credit throughout the semester. Extra credit opportunities may consist of finding examples of class concepts in the news and attending civic engagement events on campus or remotely. The value of each extra credit opportunity towards students' final grades will be provided in writing when each opportunity is announced (or shortly thereafter).

Final grades will be assigned according to the following cutoffs:

Score	Grade	Score	Grade	Score	Grade	Score	Grade
≥ 94	A	≥ 83	B	≥ 73	C	≥ 60	D
≥ 90	A-	≥ 80	B-	≥ 70	C-	< 60	F
≥ 87	B+	≥ 77	C+	≥ 65	D+		

The definitions of these letter grades are as follows:

- A: Excellent/outstanding: met or exceeded **the highest** expectations on all criteria for the

assignment or course.

- A-: Excellent (somewhat): met **very high** expectations on all criteria, or **the highest** expectations on all but one or two criteria for the assignment or course.
- B+: Good (very): met **high** expectations on all but one or two criteria for the assignment or course.
- B: Good: met **standard** expectations all but one or two criteria for the assignment or course.
- B-: Good (somewhat)/fair: met **standard** expectations on most criteria (>50%) for the assignment or course while also falling short on one or two significant criteria or on a number of less important criteria.
- C+: Satisfactory (very): met **minimum** expectations on all criteria for the assignment or course.
- C: Satisfactory: met minimum expectations on most criteria (>50%) for the assignment or course while falling short in some ways. For undergraduates, a grade of C or above is required to receive major, minor, or certificate course credit.
- C-: Satisfactory (somewhat): fell short of meeting minimum expectations on most criteria (>50%) for the assignment or course. For undergraduates, a grade of C- is sufficient to receive elective course credit.
- D: Poor: fell short of meeting **minimum** expectations on most criteria for the assignment or course. For undergraduates, a grade of D or above is required to receive elective course credit.
- F: Academic failing; very poor performance.

Course Policies

- A link to the current version of the course syllabus will be posted on my website and on the course's Canvas page. Please refer to the most current version of the syllabus for information about the course schedule, course policies, etc.
- Core course readings will come from the required textbooks, which are both open source and available for free at the links above. All other course readings will be made available through either the course syllabus and/or the course Canvas page at least one week in advance of the class for which they are expected to be completed.
- All readings, labs, problem sets, and exams are due at the beginning of class on the day specified on the course syllabus (unless otherwise specified). Late labs, problem sets, and exams will be accepted, but will be assessed a 10% penalty for each 24 hour period the assignment is late.
- *Communication Outside of Class*
 - I encourage you to contact me and your TA to discuss topics we are covering in class, concerns about the course, or other related issues outside of class. The primary mode of communication outside of class will be email. When want to email us, please include both of us on the email (Prof. Miller and Ellen) and include the course code in the subject line. We will do our best to reply to emails

within 24 hours, and we will *not* respond to emails about problem sets or other assignments sent less than 24 hours before they are due.

- Office hours scheduling will take place via Calendly. If you would like to come to office hours, please [visit my Calendly schedule](#) and reserve an available time for us to meet. If there are no available appointments or if you are not able to see me during office hours, please contact me so that we can find an alternative time to meet. As with emails, I will not discuss problem sets or other assignments during an office hours meeting that takes places less than 24 hours before they are due.
- *Technology*
 - Phone/laptop computer/tablet use is permitted only for the purposes of taking notes, retrieving materials/resources relevant to the course and completing in-class work for the course. Please be mindful that when you use your devices.
 - If any students would like to record lectures, please speak with me in advance to obtain permission. Unless prior authorization is obtained, students may not create and/or share audio or video recordings or photographs of any in-class activity.
- *Generative AI*: All work students submit should be their own. Students should generate their own ideas, words, and all elements of their work, unless appropriately acknowledged. Professors expect that students can discuss the contents of their work and the process of creating it. In some classes, the use of generative AI tools will be appropriate. However, in this course, such tools are not permitted at any stage of your work because they interfere with our learning goals. Use of these tools may constitute a violation of the university's Academic Integrity Code.

Information and Resources for Students

- *Academic Integrity*: All students are required to follow the University's [Academic Integrity Code](#). If you have not already done so, please familiarize yourself with the standards and requirements of the University's Academic Code of Conduct. Violations of the Code of Conduct will not be tolerated and should be reported appropriately.
- *Student Code of Conduct*: The central commitment of American University is the development of thoughtful, responsible human beings in the context of a challenging yet supportive academic community. The [Student Code of Conduct](#) is designed to benefit the American University community and to assist in forming the highest standards of ethics and morals among its members. By registering for this course, students have acknowledged their awareness of the Student Code of Conduct and they are obliged to become familiar with their rights and responsibilities as defined by the Code.
- *Discrimination, Harassment, or Sexual Misconduct*: American University does not discriminate on the basis of race, color, national origin, religion, sex, pregnancy or

parenting, age, sexual orientation, disability, marital status, personal appearance, gender identity and expression, family responsibilities, political affiliation, source of income, veteran status, an individual's genetic information or any other bases under applicable federal and local laws. The University expressly prohibits any form of discriminatory harassment including sexual harassment, dating and domestic violence, rape, sexual assault, sexual exploitation, and stalking.

As a faculty member, I am required to report discrimination, harassment or sexual misconduct to the Office of Equity and Title IX if I witness it or become aware of it. There are four confidential resources on campus if you wish to speak to someone who is not required to report: Counseling Center, victim advocates in OASIS, medical providers in the Student Health Center, and the Chaplain in the Kay Spiritual Life Center. For more [information](#) or if you wish to [directly make a report](#), please visit the [Office of Equity and Title IX website](#).

- *Emergency Preparedness:* In an emergency, AU will implement a plan for meeting the needs of all members of the university community. Should the university be required to close for a period of time, we are committed to ensuring that all aspects of our educational programs will be delivered to our students. These may include altering and extending the duration of the traditional term schedule to complete essential instruction in the traditional format and/or use of distance instructional methods. Specific strategies will vary from class to class, depending on the format of the course and the timing of the emergency. Faculty will communicate class-specific information to students via AU e-mail or Canvas, while students must inform their faculty immediately of any absence due to illness. Students are responsible for checking their AU e-mail regularly and keeping themselves informed of emergencies. In the event of a declared pandemic or other emergency, students should refer to the AU Web site (<http://www.american.edu/emergency/>) and the AU information line at 202-885-1100 for general university-wide information, as well as contact their faculty and/or respective dean's office for course and school/college-specific information.
- *Academic Support & Access Center:* The [Academic Support and Access Center](#) (ASAC) supports the academic development and educational goals of all American University students and is committed to providing access for individuals with disabilities within the university's diverse community. ASAC is located in Butler Pavilion 300 and can be reached at 202-885-3360 or asac@american.edu.

Disclaimer

I reserve the right to make modifications to this information throughout the semester. In the event of a conflict between syllabus versions, the most recent version will always supersede previous versions.

Preliminary Schedule of Topics, Readings, and Assignments¹

DATE	LECTURE TOPIC	READINGS & ASSIGNMENTS
January 14	Introductory Session Theories and Social Science Getting Started with R	QRM Chapters 2 & 5* Hands-On Programming Appendix A Knowing What Counts
January 21	Research Design Getting Started with R Markdown	IMS Chapter 2.1 IMS Chapter 2.2-2.4* QRM Chapters 2 & 3* R Markdown Tutorial Binder et al. (2024)
January 28	Causal Inference Data	Causal Inference: The Mixtape Chapters 1 & 4* IMS Chapter 1.1.-1.2.3 QRM Chapter 4* RESEARCH QUESTION DUE ARTICLE OUTLINE 1 DUE Jones and Becker (2022)
February 4	Descriptive Statistics	QRM Chapter 6* PROBLEM SET 1 DUE
February 11	Probability/Inference I	IMS Chapters 13-14, 16-17, 19-20 QRM Chapters 7 & 8* ARTICLE OUTLINE 2 DUE Grose et al. (2022)
February 18	Probability/Inference II	IMS Chapters 13-14, 16-17, 19-20 QRM Chapters 7 & 8* ANNOTATED BIBLIOGRAPHY & HYPOTHESES DUE
February 25	Association of Variables	IMS Chapter 18 QRM Chapter 9* ARTICLE OUTLINE 3

¹ All readings and assignments are due at the beginning of class on the date specified.

		DUE Rossiter and Carlson (2024)
March 4	Research Project Workshop (REMOTE)	PROBLEM SET 2 DUE
March 11	SPRING BREAK (NO CLASS)	
March 18	Introduction to OLS Hypothesis Testing, Model Fit, and Predictions	IMS Chapter 7.1-7.2, 24.4-24.5 QRM Chapters 10, 11* ARTICLE OUTLINE 4 DUE Kroeger and Silfa (2023)
March 25	Multivariate OLS	IMS Chapter 8.1-8.3 QRM Chapters 13, 14, & 15* METHODS AND PRELIMINARY RESULTS DUE
April 1	OLS Diagnostics	IMS Chapters 7.3, 24.6 QRM Chapter 12* ARTICLE OUTLINE 5 DUE Nelson et al. (2022)
April 8	Difference-in-Differences	Causal Inference: The Mixtape Chapter 9, Sections 9.1 and 9.2* FINAL PAPER DRAFT DUE (OPTIONAL)
April 15	Research Project Workshop (REMOTE)	PROBLEM SET 3 DUE
April 22	Research Presentations (REMOTE)	FEEDBACK DUE BY APRIL 24 AT 11:59PM ET
May 6		FINAL PAPERS DUE AT 11:59PM ET