Quantitative Social Science
LDST 249, Spring 2026

INSTRUCTOR	Volha (Olga) Chykina
CLASS TIME	WED, FRI, 9:00 am – 10:15 am; 10:30 – 11:45 am
CLASS LOCATION	Jepson Hall 101
COURSE WEBSITE	blackboard.richmond.edu
CONTACT INFORMATION	vchykina@richmond.edu (email)
OFFICE HOURS	THU 12:30 pm – 2:30 pm, or by appointment
OFFICE	Jepson Hall 131

Course Description

This course prepares students to consume data and quantitative social science in informed ways as well as to produce basic quantitative research. It provides students with an introduction to fundamental concepts in statistical analysis and research design and teaches them how to apply those concepts to their own research questions. This course is predicated on the idea that students learn best when they are engaged in practical data-related activities; as such, it will involve a variety of applied components that will be completed both during class and as homework assignments.

Learning objectives

By the end of the course, students should be able to do the following:

- Read quantitative social science research.
- Understand and critique various social science research designs.
- Present descriptive data using graphs and figures in a clear and informative way.
- Understand and conduct hypothesis tests.
- Analyze data using statistical techniques learned during the course.

Required Texts

Donovan, T., & Hoover, K. R. (2014). *The Elements of Social Scientific Thinking*. 11th Edition. Belmont, CA: Cengage Learning.

Required Statistical Software

During class, we will analyze various data. We will use **Stata** when conducting these analyses. You will need to purchase this software. A student license for Stata / IC (the version of Stata that

you will need) for 6 months will cost $48. You can purchase it here: https://www.stata.com/order/new/edu/profplus/student-pricing/. If you have any questions about purchasing this software, please feel free to contact me.

Course Grades

Your grade will be based on your performance across a range of assignments. You will complete 3 lab assignments (3X10=**30 points**); a final exam (**20 points**); and a final paper (**30 points**). We will have 8 short random quizzes throughout class that aim to ensure that you come to class prepared (1X8=**8 points**). I will also grade your participation (2X6 points=**12 points**).

Points for each assignment translate directly and with equal weight into the percentages towards the final grade. Depending on the final grade distribution, **I might choose to curve your grades**. My hope is that knowing this helps alleviate the anxiety many students may feel while taking methods classes.

Passing Letter Grades are Assigned as Follows

A+ = 98-100%	B+ = 88-89%	C+ = 78-79%	D+ = 68-69%	
A = 94-97%	B = 84-87%	C = 74-77%	D = 64-67%	F <60
A– = 90-93%	B– = 80-83%	C– = 70-73%	D– = 60-63%	

I will round grades using the following rule: 0.5 points will round to the higher letter grade, 0.49 will round to the lower letter grade. For example, 93.5 points earned during class will translate into an A and 93.49 points will translate into an A-.

Late Work

Late work will be graded down 1 point each day it is late. This is done so that students stay on top of their work load. With that said, I may grant permission to submit late work without penalty if you email me *before* the deadline and explain why you are unable to submit your work on time.

Other Important Considerations

As with any other methods class, it is extremely important that you stay on top of the material from the very beginning of the course. My goal in this class is to have you succeed and I will provide every reasonable opportunity to help ensure your success. As such, if you feel like you need additional help with the material that we are covering, please do not wait to email me and set up an office hours appointment.

Assignments and Class Activities

Lab Assignments (3X10=30 points). We will have three lab assignments during the course. These assignments will focus on applying the material covered in class and will involve conducting statistical analyses. You may use AI tools, such as ChatGPT, to help you with Stata code for these assignments.

Exam (20 points). The exam will be cumulative and will involve a practical component. You are **not** allowed to use AI tools, such as ChatGPT, during the exam.

Final Paper (30 points). In the final paper, students will pose a research question they are interested in, formulate a hypothesis / hypotheses that address their research question, and conduct statistical analyses to test their hypotheses. Because modern-day research is collaborative in nature, students will complete this assignment in groups of 2-4. If you would prefer to complete this assignment on your own instead, please let me know. A rubric for this assignment is available on Blackboard. I am happy to provide interim feedback as you are working on your papers. However, in order to avoid a last-minute rush of drafts, **I will** only **take drafts until 11:59 pm on April 24**. You may use AI tools, such as ChatGPT, to assist with writing code for the statistical analyses in your paper.

Random Quizzes (8 points). Throughout the course, we will have a number of short random tests. These tests are aimed to ensure that you come to class prepared. As such, if you come to class having read the assigned texts, you should not have a problem getting full points on these. If you have an excused absence during class when the quiz is given, you will be provided with an opportunity to make up this work.

Participation (2X6=12 points). Each student should come to class having read (or watched) the assigned materials. Students should be prepared to engage with the instructor and each other in a respectful manner appropriate for a professional setting. You are expected to come to every class, and your participation grade will suffer if you do not. With that said, I will grant excused absences with ease if you reach out to me before class and explain the nature of your absence.

I will grade your participation separately for the first and second parts of the semester so that you know whether your participation is satisfactory and can adjust accordingly.

Additional Assignment and Grading Policies:

All assignments should be submitted via Blackboard.

I do not offer extra credit or makeup work, no exceptions.

If a student disagrees with their grade for any of the assignments, they **must** discuss it with me within a week after the grade is returned. The two exceptions to this are the final paper and the final participation grade, for which students must contact me within 2 days after grades are posted.

Weekly Schedule

Students should come to class having read (or watched) all assigned materials. With the exception of the required text, all materials are on Blackboard or are publicly available.

January 14: Introduction to Social Science Research
  o Gawande, A. (2016). *The Mistrust of Science*. 2016 commencement address delivered at Cal Tech: https://www.newyorker.com/news/news-desk/the-mistrust-of-science. Pdf also available on Blackboard.
  o Donovan & Hoover, Chapter 1.

January 16: What is a Good Variable?
  o Donovan & Hoover, Chapter 2, pp. 12-26.

January 21: Measurement of Variables
  o Donovan & Hoover, Chapter 5, pp. 80-86.
  o We might start the Stata tutorial during this class, so please make sure you have Stata installed before class starts.

January 23: Stata Tutorial
  o Imai & Bougher, Chapter 1, Section 1.3, pp. 8-26.

January 28: Descriptive Statistics (Mean, Median, Mode, Range)

  o Ary et al., Chapter 6, pp. 120-123.
  o Acock, Chapter 5, pp. 93-97.

January 30: Data Presentation and Visualization
  o Bergstrom & West. Chapter 7: Data Visualization.
    ◊ This book chapter is from an excellent book titled *Calling Bullshit: The Art of Skepticism in a Data-Driven World*. We will read another chapter from it during class and we will do some exercises from the companion website. This is a great book to read if you would like an additional reading that complements class material: https://www.callingbullshit.org/index.html.

February 4: Lab 1 Workshop
  o Video on scatterplots in Stata: http://youtu.be/GhVGpe3lb3E.
  o Video on histograms in Stata: http://youtu.be/nPqNZVToGx8.
  o Video on bar graphs in Stata: http://youtu.be/jNjAdtQwW6M.

 Lab #1 due on February 6, at 8:59 am

February 6: Probability and Types of Distributions
  o Agresti & Finlay, Chapter 4, sections 4.1 – 4.3

February 11: Sampling Distribution
- o Agresti & Finlay, Chapter 4, sections 4.4 – 4.7

February 13: Confidence Intervals
- o Agresti & Finlay, Chapter 5, sections 5.1 – 5.3

February 18: Hypothesis Testing
- o Donovan & Hoover, Chapter 2, pp. 26-37.
- o Donovan & Hoover, Chapter 4.
- o Ary et al., Chapter 5.

February 20: T-test and Group Differences
- o The Statistical Analysis T-Test Explained for Beginners and Experts

February 25: Lab 2 Workshop
- o Video on one-sample t-tests in Stata: http://youtu.be/HwzCyqW-0dc.
- o Video on independent samples t-tests in Stata: http://youtu.be/by4c3h3WXQc.
- o Video on paired samples t-tests in Stata: http://youtu.be/GiDSnufmZgI.

Lab #2 due on February 27, at 8:59 am

February 27: Correlation vs. Causation. Experimentation as the Gold Standard
- o Bergstrom & West. Chapter 4: Causality.

February 28: Correlation
- o Donovan & Hoover, Chapter 5, pp. 94-103.

March 4: Regression
- o Donovan & Hoover, Chapter 5, pp. 103-113.
- o Imai & Bougher, Chapter 4, Section 4.2, pp. 144-149.

March 6: Regression (Cont'd)
- o Sevi. Guide to Interpreting Regression Tables.

Spring Break!

March 18: Regression (Cont'd)
- o Sevi. Guide to Interpreting Regression Tables.

March 20: Introduction to Logit Models
- o Donovan & Hoover, Chapter 5, pp. 113-115.
- o Acock, Chapter 11, pp. 339-351.

March 25: Interpreting OLS and Logit Models
- o Sanchez, D. V., & Frey, E. F. (2020). Where do Females Rise to Leadership Positions? A Cross-Sector Analysis. *Applied Economics Letters*, *27*(15), 1252-1255.

March 27: Lab 3 Workshop
- o Video on linear regression in Stata: https://www.youtube.com/watch?v=HafqFSB9x70&t=3s.
- o Video on logistic regression in Stata: https://www.youtube.com/watch?v=0C_Hlh_jNq8.

Lab #3 due on April 1, at 8:59 am

April 1: Class Cancelled – Comparative and International Education Society Annual Meeting

April 3: Exam Review

April 8: Exam

April 10: Workshopping Final Papers

April 15: Final Paper Presentations

April 17: Survey Experiments
- o Evidence in Governance and Politics (EGAP) Guide: *Ten Things to Know About Survey Experiments*. https://egap.org/resource/10-things-to-know-about-survey-experiments/. Pdf also available on Blackboard.

April 22: Natural Experiments and Causal Inference with Observational Data
- o Dunning, Chapter 1: Why Natural Experiments?

April 24: Natural Experiments and Causal Inference with Observational Data
One article will be assigned to a group of several students. Each of these articles includes one of the research designs that we discussed during the previous class. You will discuss a set of questions about the article in groups before class and you will then present your article to the rest of the class.
- o Beaman, L., Duflo, E., Pande, R., & Topalova, P. (2012). Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India. *Science*, *335*(6068), 582-586.
- o Ferreira, F., & Gyourko, J. (2014). Does Gender Matter for Political Leadership? The Case of US Mayors. *Journal of Public Economics*, *112*, 24-39.
- o Campbell, D. T., & Ross, H. L. (1968). The Connecticut Crackdown on Speeding: Time-Series Data in Quasi-Experimental Analysis. *Law and Society Review 3*(1), 33-53.
- o Holbein, J. B., & Hillygus, D. S. (2016). Making Young Voters: The Impact of Preregistration on Youth Turnout. *American Journal of Political Science*, *60*(2), 364-382.
- o Lyall, J. (2009). Does Indiscriminate Violence Incite Insurgent Attacks? Evidence from Chechnya. *Journal of Conflict Resolution*, *53*(3), 331-362.

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Final Paper Due:
9:00 am section: April 27, 11:59 am.
10:30 am section: April 29, 11:59 am.

End Fall Term: May 2

Final Grades Due:
Degree candidates – May 4, by 9 am.
Other grades – May 11, by 9 am.

Other Policies

Awarding of Credit
To be successful in this course, a student should expect to devote 10-14 hours each week, including class time and time spent on course-related activities.
registrar.richmond.edu/services/policies/academic-credit.html

Disability Accommodations
Students with a Disability Accommodation Notice should contact their instructors as early in the semester as possible to discuss arrangements for completing course assignments and exams.
disability.richmond.edu/

Honor System
All assignments are expected to be the student's original work. The Jepson School follows the provisions of the Honor System as outlined by the School of Arts and Sciences. This means that no student is to use, rely on or turn in work that was paid-for, copied, excessively summarized without citation, created in collaboration (without permission), produced by AI (without explicit permission), or is otherwise not the original work of the student (without explicit permission).

Religious Observance
Students should notify their instructors within the first two weeks of classes if they will need accommodations for religious observance.

Addressing Microaggressions on Campus
Microaggressions are the everyday verbal, nonverbal, and environmental slights, snubs, or insults, whether intentional or unintentional, that communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership[1]. Recent research has found that, when professors do not address microaggressions in class, microaggressions foster alienation of marginalized groups[2]. Furthermore, both students and faculty who are exposed to microaggressions more often are more likely to have depressive symptoms and negative affect (a negative view of the world)[3]. A comfortable and productive environment where meaningful learning happens can be collectively created through actions, words, or environmental cues that promote the inclusion and success of marginalized members, recognizing their embodied identity, validating their realities, resisting sexism, ableism, and racism[4]. With this in mind, community member at the University of Richmond should aim to address microaggressions in the classroom by holding themselves, other students, and faculty accountable for what is said and being receptive to criticism when perpetuating these slights, snubs, or insults.

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[1] Sue, S., Zane, N., Nagayama Hall, G. C., & Berger, L. K. (2009). The Case for Cultural Competency in Psychotherapeutic Interventions. *Annual Review of Psychology, 60*(1), 525–548. https://doi.org/10.1146/annurev.psych.60.110707.163651

[2] Bergom, I., Wright, M.C., Brown, M.K. and Brooks, M. (2011), Promoting College Student Development through Collaborative Learning: A Case Study of Hevruta. *About Campus, 15*, 19-25. https://doi.org/10.1002/abc.20044

[3] Nadal, K. L., Griffin, K. E., Wong, Y., Hamit, S., & Rasmus, M. (2014). The Impact of Racial Microaggressions on Mental Health: Counseling Implications for Clients of Color. *Journal of Counseling & Development, 92*(1), 57–66. https://doi.org/10.1002/j.1556- 6676.2014.00130.x

[4] Rolón-Dow, R. (2019). Stories of Microaggressions and Microaffirmation: A Framework for Understanding Campus Racial Climate. *NCID Currents, 1*(1). http://dx.doi.org/10.3998/currents.17387731.0001.106