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 hypothesis testing and conduct hypothesis tests.
- Analyze their data of choice using statistical techniques learned during the course.

Required Texts


Please make sure you get the 11th edition of Donovan and Hoover and the 8th edition of Holcomb and Cox. All other materials will be provided via Blackboard.

**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 short random tests throughout class that aim to ensure that you come to class prepared (8 points). Additionally, participation will be graded out of 12 points (2X6 points). We will also have ungraded homework assignments and exercises that will help you understand and practice the material as we progress through class.

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**

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<tr>
<th>Grade</th>
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<tr>
<td>A+</td>
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<td>A</td>
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<td>B+</td>
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<td>D+</td>
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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−.

**Considerations Related to Online Instruction**

I will ask you to keep your camera on during class because I find that students are more engaged when their cameras are on. With that said, I understand that there might be instances when you might prefer to have your camera off. Please email me if this is the case. If you want to use a Zoom virtual background for privacy reasons, you can download UR-themed backgrounds here: https://www.richmond.edu/digital-swag/index.html. I will use the Waiting Room feature to prevent Zoombombing, so please make sure you use your university-affiliated Zoom account when you join class.

**Late Work**

Late work will be graded down 0.5 points for each day it is late. This is done so that students stay on top of their work load. With that said, given the nature of this semester and the additional stress
of learning during the pandemic, I will 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.

*Final Exam (20 points).* Final exam will be cumulative and will involve a practical component.

*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. A rubric that gives guidance 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 provide feedback until April 30.

*Random Tests (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 test 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 the assigned materials. Students should be prepared to engage with the instructor and each other in a respectful manner appropriate for a professional setting. Discussion of assigned readings and ungraded homework assignments will count toward participation grade. 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:**

If a student disagrees with their grade for any of the assignments, they must discuss it with the instructor 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 reach out to the instructor within 2 days after grades are given.
Weekly Schedule

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

January 20: Introduction to Social Science Research

January 22: Social Science Research and Leadership Studies
- Donovan & Hoover, Chapter 1.
- We might start the Stata tutorial during this class, so please make sure you have Stata installed before class starts.

January 27: Stata Tutorial
- Video on program interface: https://www.youtube.com/watch?v=nV5WfR92LIM.
- Video on how to import data from Excel: https://www.youtube.com/watch?v=N5ZFgzN2_7c&feature=youtu.be.

January 29: Sampling and Survey Problems
- Donovan & Hoover, Chapter 5, pp. 86-94.

February 3: What is a Good Variable?
- Donovan & Hoover, Chapter 2, pp. 12-26.

February 5: Measurement of Variables
- Donovan & Hoover, Chapter 5, pp. 80-86.
- Ary et al., Chapter 6, pp. 112-116.

February 10: Descriptive Statistics (Mean, Median, Mode, Range)
- Ary et al., Chapter 6, pp. 120-123.
- Holcomb & Cox, Section 2.1. Make sure you complete all questions included in the section.
- A short Stata homework assignment.

February 12: Data Presentation and Visualization
- 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.

- Video on scatterplots in Stata: http://youtu.be/GhVGpe3lb3E.
- Video on bar graphs in Stata: http://youtu.be/jNjAdtQwW6M.
- Holcomb & Cox, Section 3.6, Questions 1, 2, 6, 7, 8, 9, 10, and 11.

**Lab #1 due on February 16, at 11:59 pm**

**February 17:** Probability and Types of Distributions
- Agresti & Finlay, Chapter 4, sections 4.1 – 4.3

**February 19:** Sampling Distribution
- Agresti & Finlay, Chapter 4, sections 4.4 – 4.7

**February 24:** Confidence Intervals
- Agresti & Finlay, Chapter 5, sections 5.1 – 5.3

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

**March 3:** Light Work Load Week
- As per university recommendations, I have designated this week as a light workload week. As such, I expect you to come to class but there won’t be any homework or assignments that are due. During the week, we will do some lab exercises in class and I will also introduce you to data that you might choose to use in your final papers.

**March 5:** Light Work Load Week
- Come to class for some data exercises and activities!

**March 10:** T-test and Group Differences
- Video on one-sample t-tests in Stata: http://youtu.be/HwzCyqW-0dc.
- Video on independent samples t-tests in Stata: http://youtu.be/by4c3h3WXQc.
- Video on paired samples t-tests in Stata: http://youtu.be/GiDSnufmZgI.

**March 12:** Correlation vs. Causation. Experimentation as Gold Standard.
- Bergstrom & West. Chapter 4: Causality.

**March 17:** Correlation
- Donovan & Hoover, Chapter 5, pp. 94-103.
- Holcomb & Cox, Section 4.1. Make sure you complete all questions included in the section.
Lab #2 due on March 18, at 11:59 pm

March 19: Linear Regression – Continuous Outcomes
  o Donovan & Hoover, Chapter 5, pp. 103-113.

March 24: Linear Regression – Continuous Outcomes
  o Holcomb & Cox, Section 4.9, Questions 1-11.

March 26: Regression in Stata and Interpreting Results of Regression Analyses
  o Interpreting regression output: https://dss.princeton.edu/online_help/analysis/interpreting_regression.htm

March 31: Probit and Logit Analysis
  o Donovan & Hoover, Chapter 5, pp. 113-115.

April 2: Interpreting Results of Logit / Probit Models
  o Stata tutorial for logistic regression: https://www.youtube.com/watch?v=C_Hlh_jNq8

Lab #3 due on April 6, at 11:59 pm

April 7: No Class – Break Day
  o Rest up!

April 9: Workshopping Final Papers
  o Come to this class with an idea of what research question you would like to answer in your final paper and how you will go about answering it. More details will be provided regarding the specifics of what you need to have ready for this class. I will also do a presentation here that clarifies expectations that I have for your final paper, its structure, etc.

Submit your final paper research question and how you will go about analyzing it by April 13, at 11:59 pm. More details on what you will need to include in this submission will be provided. This is not a graded assignment but it will help you to make sufficient progress towards the final paper and get helpful feedback on the project.

April 14: Survey Experiments
  o Sniderman (Druckman et al, Eds.), Chapter 8: The Logic and Design of the Survey Experiment.

April 16: Natural Experiments and Causal Inference with Observational Data
  o Dunning, Chapter 1: Why Natural Experiments?
April 21: 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.

April 23: Review for the Final Exam

April 26: Final Exam. (Make-up class for April 7. Please note that April 26 is a Monday.)

**Final Paper Due: May 5, 11:59 pm**

End Spring Term: May 6
Final Grades Due: May 17
Other Policies

**Integrity with Class Recordings**

Students shall not:

- Disclose, share, trade, or sell class recordings with/to any other person, organization, business, or institution;
- Post/store these recordings in a location accessible by anyone other than the student, including but not limited to social media accounts.

Students must also comply with any instructions or directions from their faculty regarding the use of such recordings. Students are required to destroy any recordings that were made when they are no longer needed for the student’s academic work. Failure to abide by this policy will be a violation of the Standards of Student Conduct; such issues will be sent to the appropriate University Conduct Officer.

**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**

The Jepson School supports the provisions of the Honor System. The shortened version of the honor pledge is: “I pledge that I have neither received nor given unauthorized assistance during the completion of this work.”

studentdevelopment.richmond.edu/student-handbook/honor/the-honor-code.html

**Religious Observance**

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

registrar.richmond.edu/planning/religiousobs.html

**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. Recent research has found that, when professors do not address microaggressions in class, microaggressions foster alienation of marginalized groups. Furthermore, both students and

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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\(^4\).

The University of Richmond is committed to building an inclusive community. To do so, the following resources are available to support our students: Spiders Against Bias (an anonymous peer to peer support network that aids microaggression and bias incident survivors in connecting to different resources) and the Bias Resource Team\(^5\). Additionally, this semester students are leading a series of workshops, \textit{Not So Slight: Combating m.Acroaggressions}, for students to learn how to recognize microaggressions and how to have meaningful conversations around difficult topics in an aggression-free environment.

With this in mind, as a community member at the University of Richmond, I pledge to address microaggressions in the classroom by holding myself, other students, and faculty accountable for what is said and being receptive to criticism when perpetuating these slights, snubs, or insults.


\(^5\) https://commonground.richmond.edu/contact/bias-incidents/index.html