POLI 395: Applied Research Methods

Dogus Aktan

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SST 106

TR // 1:00-2:15

Contact Information

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Office Hours: TR, 2:30 - 4:00 pm

Course Overview and Learning Outcomes

This course introduces students to foundational ideas in designing and conducting research in social sciences. It will provide a structured setting for students to develop a research project on a topic of their own choice. The class will also equip students with fundamental skills necessary to evaluate social science research in order to prepare them for more advanced classes.

Throughout the course, students work in groups to create a research paper and a poster, which will be presented at a symposium at the end of the semester. The class structure and schedule have a number of checkpoints built-in to provide students with regular feedback and assistance.

Students who apply themselves will have:

- **Substantive knowledge:** Students will have foundational knowledge in the scientific study of social phenomena. They will also acquire a good overview of key findings in the area of their research project.
- **Empirical analysis:** Students will learn how to interpret, conduct and evaluate political science research, including data collection and data analysis techniques and

statistical software. They will also recognize and understand key challenges to conducting empirical research in social sciences.

- **Communication:** Students will develop key data visualization, written and oral presentation skills to effectively communicate political science research, including their own, to broader audiences.

Course Readings and Software

Course Readings

There are no required books to buy for this course. There will be some readings assigned from academic journals and from several different textbooks. All readings will be made available on Canvas. If you want to have a text book in hand to follow through, I am happy to recommend a few.

For R labs and related exercises, we will primarily be referring to R for Data Science (2e) which is available for free here.

The reading load is relatively light and lightens even more as the semester progresses. The goal of this class is to give you essential skills to critically consume and produce research. Therefore, the readings assigned are aimed to provide you useful tips, good examples, and guidelines from social scientists.

That being said, some readings might require you to spend some time with it to be able to digest them completely. Don't be discouraged. I will provide you specific instructions and guidance when this is the case.

Course Software

For data analysis and visualization, we will be using R through its Graphical User Interface RStudio. Both are open source and free to use.

Download and install R first and then RStudio. You should have RStudio up and running before your first lab session.

Class Format and Policy

The class has two components: First is two in-person meetings each week with me. The other is an R lab with the TA, who will help you learn R throughout the semester.

The course will be organized and run as a research workshop rather than as a typical lecture or discussion course (e.g., a freshman seminar). Thus, the main activity of in-person

meetings will be crafting your research projects. While there will be some lecturing and instruction on my part, the key focus will be work-shopping your projects, answering your questions, and providing feedback to your peers' projects. This means active participation and engagement, both with me and your peers is essential for your success.

I also expect you to communicate and meet regularly with the members of your groups outside the class. I suggest that your group meet at least once per week at a designated, regular time (that you will choose with your other group members) to make sure your research project is progressing well. Do not underestimate the time commitment involved in conducting original research.

Policy on Student Questions and Emails

I am always happy to answer student questions during office hours or over e-mail. I will generally reply to e-mails within 24 hours but make sure you send your questions in a timely manner. If don't respond to your email within 2 days, please feel free to remind me in person or send a reminder email.

Keep in mind that most questions you may have (about assignments, policies, etc. . .) can be answered by simply taking a close look at the syllabus. Every student should read the entire syllabus carefully at the beginning of the class and before sending me a question. When you have finished reading the syllabus for the first time, send me an e-mail, telling me what your favorite animal is.

Assignments and Grades

Participation	: 5%
R lab exercises	: 20%
Individual and Group assignments	: 30%
Final Paper	: 25%
Poster and Presentation	: 20%

Participation 5%

Students are expected to attend all class sessions and to contribute to the class by actively asking questions and providing constructive feedback for their peers.

R lab exercises: 20%

R labs will have exercises that will be graded. During the lab, you may work with your colleagues in completing the exercises, and you are also encouraged to seek out the answers online. However, you must turn in your own work.

Individual and Group assignments: 30%

Each student will select into a research group depending on their research interests. The group will focus on a specific research question work together on their research project to answer the question. Throughout the semester there will be group assignments and exercises designed to guide you to write sections of your paper. I will provide feedback on each segment. The segments are:

- Research question and introduction 5%
- Literature review 5%
- Finding DATA 5 &
- Theory and hypotheses 5%
- Research design and DAGs 5%
- Data analysis and visualization 5%

Final Paper: 25%

Each group will provide a draft of their research paper describing their project and the the results. I will provide feedback on that draft, so students will have a chance to revise before the end of the semester. Each of the individual assignments is a building block towards the final paper. When the final paper is due, you will not write it from scratch but largely refine what you have already written.

Poster and Presentation 20%

At the end of the semester (exact date TBD) each group will present a poster detailing its project. After completing the draft of your research papers, you will learn the basics of turning that note into a scientific poster and will be present your poster at our symposium.

Assignment Calendar

	Assigned	Due
Research question and introduction	January 23 -	February 3
Literature review	February 6	February 13
Data Sources	February 11	February 27
Theory and hypotheses	February 22	March 4
Research design and DAGs	March 6	March 13
Data analysis and visualization	March 13 -	March 27
Final Paper Draft		April 22
Poster and Presentation	TBD	TBD
Final Paper		

Grade Policies

All assignments and exams must be completed on time in order to pass this course. Make ups will only be granted under extraordinary circumstances such as documented and verified medical or family emergencies. All documentation corresponding to such emergencies should be forwarded to the professor. Personal reasons are insufficient excuses for making up missed assignments, exams, or quizzes.

All assignments must be submitted via Canvas. I do NOT accept assignments via e-mail.

Students must complete ALL mandatory assignments to be able to receive a passing grade.

I do not grade on a curve. Each student's work will be evaluated independently based on its quality. It is possible for every student in the class to get an A. However, such high marks will require effort on your part.

If a student wishes to dispute their grade on an assignment, they must contact me within 48 hours of receiving their grade and set an appointment to discuss it. At this appointment they must bring a typed summary of the reasons why they believe the grade is unfair. I will then reevaluate the assignment on the basis of these reasons. All revised grades are final, and they may be lower than the original grade.

Grading Group Work

I will assign a single grade to all group members for work done during the semester (i.e., the weekly assignments). I will also keep track of which group members speak for the group in class (i.e., who does the many in class presentations that we will do and who answers my questions about the projects). In addition, at the end of the semester, I will ask you to discuss the role that each of your teammates played in producing the research. I will also ask you to grade the overall performance of your teammates along several

dimensions. I will take all this information into consideration when assigning individual grades to the members of your group at the end of the semester.

Absence Policies

I expect you to attend all scheduled classes. An absence will be considered unexcused unless you give me documentation of the absence. You should also check out the Rice University absence policies here.

AI Policies

Students are not allowed to use advanced automated tools (artificial intelligence or machine learning tools, such as ChatGPT) on assignments in this course. Each student is expected to complete each assignment without substantive assistance from others, including automated tools. If you are found to have used AI for an assignment, this will be treated as a violation of the Rice Honor Code. In my experience, automated tools are not great at writing political science papers. They can make up sources that don't exist and produce relatively low quality analysis. Using AI will not only result in a poor assignment, but it also undermines the whole reason why you are taking this course – to build writing and analytical skills that will help you understand and critically evaluate current events!

Rice Honor Code

In this course, all students will be held to the standards of the Rice Honor Code, a code that you pledged to honor when you matriculated at this institution. If you are unfamiliar with the details of this code and how it is administered, you should consult the Honor System Handbook at `http://honor.rice.edu/honor-system-handbook/`. This handbook outlines the University's expectations for the integrity of your academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process.

Disability Resource Center

If you have a documented disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with the Disability Resource Center (Allen Center, Room 111 / adarice@rice.edu / x5841) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

Mental Health Statement

If you are having trouble completing your coursework, please reach out to the Wellbeing and Counseling Center. Rice University provides cost-free mental health services through the Wellbeing and Counseling Center to help you manage personal challenges that threaten your personal or academic well-being. If you believe you are experiencing unusual amounts of stress, sadness, or anxiety, the Student Wellbeing Office or the Rice Counseling Center may be able to assist you. The Wellbeing and Counseling Center is located in the Gibbs Wellness Center and can be reached at 713-348-3311 (available 24/7).

Title IX Responsible Employee Notification

Rice University cares about your wellbeing and safety. Rice encourages any student who has experienced an incident of harassment, pregnancy discrimination or gender discrimination or relationship, sexual, or other forms interpersonal violence to seek support through The SAFE Office. Students should be aware when seeking support on campus that most employees, including myself, as the instructor/TA, are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. For more information, please visit safe.rice.edu or email titleixsupport@rice.edu.

Syllabus Change Policy

This syllabus is only a guide for the course and is subject to change with advanced notice.

Course Schedule

Module 1: Introduction to the Course and the Science of Politics

Week 1: Introduction, Overview

- Tuesday, January 14: Introduction and Logistics
  - Syllabus
- Thursday, January 16: Science of Politics
  - Paul M. Kellstedt and Guy D. Whitten, *The Fundamentals of Political Science Research* (Chapter 1)
  - Ethan Bueno de Mesquita and Anthony Fowler, *Thinking Clearly with Data* (Chapter 1)"
- Thursday, January 16: Lab Session: Basics of R and RStudio
  - Grolemund and Wickham, Chapter 2 - 4

Week 2: Political Science Research

- Tuesday, January 21: Example Research Paper
  - **Read:** Brian T. Hamel and Derek E. Holliday, "Unequal Responsiveness in City Service Delivery: Evidence from 42 Million 311 Calls", *Quarterly Journal of Political Science*
  - **Listen:** Not Another Politics Podcast Episode Discussing the Same Paper here or here
- Thursday, January 23: Crafting a Research Question
  - Nick Huntington-Klein, *The Effect*, (Chapter 2) here
  - Judea Pearl and Dana Mackenzie *Book of Why* (Chapters 1 & 2)
  - Cyrus Samii, "Methodologies for "Political Science as Problem Solving"" here
- Thursday, January 23: Lab Session: R Graphics
  - Grolemund and Wickham, Chapter 1 & 9

Module 2: Evaluating and Doing Political Science

Week 3: The Experimental Benchmark for Empirical Research

- Tuesday, January 28: Causality and Experiments
  - Elena Llaudet and Kosuke Imai, *Data Analysis for Social Science* (Chapter 2)

  - Ethan Bueno de Mesquita and Anthony Fowler, *Thinking Clearly with Data* (Chapter 3)"
- Thursday, January 30: Research Question Workshop
  - Andrew Little "Three Templates for Introductions to Political Science Articles"
- Thursday, January 30: Lab Session: Understanding Data Structures in R
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Week 4: Literature Review

- Tuesday, February 4: How to Read and Use Previous Research
  - Jeffrey Knopf, "Doing a Literature Review", *PS: Political Science and Politics*
  - Paul M. Kellstedt and Guy D. Whitten, *The Fundamentals of Political Science Research*, Pages 38-39
- Thursday, Thursday, February 6: Sample Literature Reviews
  (Read only the Introductions and Literature Reviews)
  - Emily Ritter and Courtney Conrad, "Preventing and Responding to Dissent: The Observational Challenges of Explaining Strategic Repression" , *American Political Science Review*
  - Devorah Manekin and Tamar Mitts, "Effective for Whom? Ethnic Identity and Nonviolent Resistance", *American Political Science Review*
  - Adrienne Lebas and Lauren E. Young, "Repression and Dissent in Moments of Uncertainty: Panel Data Evidence from Zimbabwe", *American Political Science Review*
- Thursday, Thursday, February 6: : Lab Session: Exploring Data in R
  - Grolemund and Wickham, Chapters 9-11

Week 5: Concepts, Measurements, and Data

- Tuesday, February 11: Concepts, Measurements, and Data
  - W. Philips Shively, *The Craft of Political Research* (Chapters 4 & 5)
  - Cullen Hendrix, "Measuring state capacity: Theoretical and empirical implications for the study of civil conflict", *Journal of Peace Research*
  - Valerie Bauerlein, "How to Measure a Storm's Fury One Breakfast at a Time." here
- Thursday, February 13: NO CLASS

Week 6: Theory and Hypotheses

- Tuesday, February 18: The Purpose of Theories
  - Dimiter Toshkov, *Research Design in Political Science* (Chapter 3)
  - Stephen Van Evera, *Guide to Methods for Students of Political Science* (Chapter 1)
- Thursday, February 20: How to Evaluate Theories
  - Cyrus Samii, "How to judge a theoretical model", here
  - Kevin A. Clarke and David M. Primo, *A Model Discipline* (Chapter 4)
- Thursday, February 20: Lab Session: Data Structures in R

Week 7: From Theory to Research Design

- Tuesday, February 22
  - Judea Pearl and Dana Mackenzie, *Book of Why* (Chapter 7)
- Thursday, February 27
  - Nick Huntington-Klein, *The Effect* (Chapters 6-8)
- Thursday, February 27: Lab Session: Importing and Wrangling Data

Week 8: Visualizing our Assumptions and Designs with DAGs

- Tuesday, March 4: Introduction to DAGs and Theory Workshop
  - No Readings
- Thursday, March 6: DAG Workshop and Challenges to Inference
  - No Readings
- Thursday, March 6: Lab Session: Refresher and Catch up
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Week 9: Data Analysis

- Tuesday, March 11
  - Readings TBD by Group Needs
- Thursday, March 13
  - Readings TBD by Group Needs
- Thursday, March 13: Lab Session: Working with your data in R
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Week 10: Break

- Tuesday, March 18 - NO CLASS
- Thursday, March 20 - NO CLASS

Module 3: Polishing and Presenting Your Project

Week 11: Data Analysis Workshops

- Tuesday, March 25 :
  - No Readings
- Thursday, March 27:
  - No Readings
- Thursday, March 27: Lab Session: Data Analysis in R cont.
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Week 12: Presentation Preparation and Discussion

- Tuesday, April 1
  - Branislav L. Slantchev, "Talk on Talks"
  - Rachel Meager "Public Speaking for Academics"
- Thursday, April 3
  - No Readings
- Thursday, April 3: Lab Session: Data Visualization for Poster Presentation

Week 13: Finishing Your First Draft

- Tuesday, April 8
  - No Readings
- Thursday, April 10
  - No Readings
- Thursday, April 10: Lab Session: Q &A and Review
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Week 14: Practice Presentations

- Tuesday, April 15
  - No Readings
- Thursday, April 17
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Week 15: TBD

- Tuesday, April 22
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- Thursday, April 24
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