PSCI 3075 – APPLIED POLITICAL SCIENCE RESEARCH

Fall 2020

Instructor	*Contact*	*Office Hours*
Sarah Hunter (Ph.D.)	Sarah.hunter@colorado.edu Office: 233 Ketchum	Thursdays 10:00am-12:00 p.m. Sign-up Sheet available on Canvas

Course Overview:

Couse Description: "Introduces the types of research design and quantitative methodology used in applied political science research. Directly builds on the data analysis performed in Quantitative Research Methods (PSCI 2075)." (from CU Course Catalog).

Political Science as a field utilizes many methods of statistical analysis. These methods are also growing common in several other fields, both academic and industry. This course builds off PSCI 2075 to teach the basics of statistical analysis. These skills can be easily transferred to many other fields of study. Data analytics is one of the fastest growing fields of employment. This course seeks to provide a foundation of knowledge for data analysis upon which you can build further.

Course Goals:

By the end of this course, you should be able to:

- Define the basic components of social science research design.
- Identify and build good social science theory.
- Apply the fundamentals of social science research design.
- Understand basic probability and statistical theory.
- Understand that basic concepts underlying quantitative social science research.
- Critique the theory and methods of other scholarly work.
- Apply tools of statistical analysis to original research.
- Conduct an original research project using quantitative analysis using statistical software.

Required Reading:

- Kellstedt, Paul M. and Guy D. Whitten. 2013. *The Fundamentals of Political Science Research 3rd Edition*.
- Harris, Jenine K. 2021. *Statistics with R: Solving Problems Using Real-World Data*. Los Angeles: Sage.
- Other readings are available online, usually by searching the title and author in Google Scholar or through the course Canvas page.
- Recommended Books:
  - Fox, John. *Companion to Applied Regression*.
  - Pollock III, Philip H. and Barry C. Edwards. 2017 *An R Companion to Political Analysis 2nd Edition*. CQ Press. ISBN: 1506368840.

Software:

In this class, we will mainly use R or R Studio. You should have this program downloaded from PSCI 2075, but you will probably have to update your R sources program. Some of you may be more comfortable with Stata or SPSS, however R and R Studio are both free, open source software packages. But you can obtain Stata through CU for a student rate. You will need to know R for the purposes of this course, but your final paper may be done in the software of your choosing.

Course Structure and Covid-19:

This semester will be odd in many ways due to the ongoing Covid-19 pandemic. To help students safely learn, several measures have been put into place. First, all student must wear a mask during class. Second, social distancing is a must in the classroom. In order to maximize social distancing, we have broken the class into "cohorts". This means that only one third of the class will be present any given day of class. You will be assigned a day. Therefore, you will only be in class once per week. On your day in class, we will be working on R Labs after a 10-minute Q & A session about the weeks or previous week's material. I will give you R Code, which you will follow while I demonstrate some code. Each day you are assigned to be in class, you will be turning in the R output and R code (see the "Labs" section of the assignments). If you need to be absent for any reason (i.e. quarantine), you may complete the Lab at home and turn it in online.

This course will also include an asynchronous element. I will be posting short (around 20 minute) lectures 2-3 times each week. This lecture will be recorded and posted on Canvas for you to watch at your convenience. I highly recommend you keep up with the material, following the schedule on the syllabus. It is much more difficult to catch up in this class if you get behind.

In the event we make the move to a fully remote learning environment, we will meet for lab over Zoom on your specified day. Everything else will remain the same.

Assessment Overview:

- Reading Quizzes   (10%)
- Labs   (10%)
- Problem Sets   (20%)
- Original Research Project (25%)
- Midterm Exam I   (15%)
- Midterm Exam II   (20%)

Grade Scale			
A	95 –100	C	74-76
A-	90-94	C-	70-73
B	88-89	D+	67-69
B	84-87	D	64-66
B-	80-83	D-	60-63
C+	77-79	F	<59

Reading Quizzes: 10%

Each week will have a reading quiz due before class on Monday. This quiz will be posted on Canvas under the appropriate module. It will be over that entire week's reading. There are no makeup quizzes. I do not reopen quizzes after their due date. The quizzes are open at the start of the semester, and close at the start of class on the day they are due. I will be dropping your two lowest Reading Quiz grades at the end of the term.

Labs (10%):
In lieu of attendance, (and given the current circumstances) each day in class will be an R Lab. This lab can be completed at home if you need to be absent from class (due to illness or quarantine). The R Labs will be a sequence of commands for you to try and follow along. To get credit for the lab, you will need to submit both your R code and the output. There will be instructions for each lab. Labs will be due by 5 p.m. the day of your cohort's class.

Problem Sets (20%):
Your homework for this class will be 10 problems Sets that will be due most Fridays by 7 p.m. These problem sets will cover concepts discussed in class from R applications to more theoretic concepts. Problem sets will also be the way to keep your project going. Many problem sets will ask that you make certain progress on your research paper. On some, I will ask for an annotated bibliography. On other problem sets, I will ask for descriptive statistics from your project's data. Do keep up with these. It will make your life easier in the long run, trust me.

Original Research Project (25%):
Your paper should be a full-length research paper with your original quantitative analysis (usually a multiple regression). While there is no page limits, your paper should be in the ballpark of 20 pages to include all the required elements. You should also follow the guidelines below:
- Use 12-point Times New Roman font
- Follow the usually structure of a research paper, as discussed in class:
  - Introduction
  - Literature Review
  - Theory/Hypothesis
  - Research Design
  - Results
  - Discussion of Results
  - Conclusion
- Use proper citation formatting. My preference is for either APA or Chicago, but use what is most comfortable for you. Be consistent and use the proper formatting.
- You must conduct a quantitative analysis and INCLUDE YOUR R CODE. You can either submit your R script file or copy and paste your R code at the end of your paper.
- While I am not strictly grading on grammar and mechanics, failure to use proper grammar and mechanics will impact your grade if it makes your paper unclear or difficult to read.
- Use the rubric to make sure you have included all required elements of your paper.
- Keep in mind that the problem sets will help you get many of the elements done early.

Exams: 35%
You will have two midterm exams this semester. These exams will all be online (on Canvas) and timed. The structure of the exams will be mostly short answer and application-focused questions. The first midterm will be worth 15% of your grade and the last midterm (given before Thanksgiving break) will be worth 20% of your grade and will be cumulative.

Office Hours:

Office hours this semester will be conducted virtually via Zoom. Every Thursday, I will be logged on to Zoom. I will also have a Google Doc posted on Canvas so you can sign up for a 15-minute appointment. I will be logged onto Zoom and will send you an invitation at the appointment time. I do ask, in the interest of bring able to help as many people as possible that you only sign up for one appointment slot at a time. If you need more help and there is no one else in the appointment slot behind you, we can extend the conversation. If that time does not work for you, please feel free to request an appointment outside normal office hours.

Late Work:

Late work will be accepted but will be subject to a penalty of 10 percentage points per business day it is late. After five business days, half credit will be given. Extensions will only be given in extenuating circumstances. All of the due dates are on the syllabus, allowing you to plan accordingly. All work will be turned in online to further help anyone that cannot attend in person due to Covid-19. If you are having any troubles (i.e. extenuating circumstances), please contact me and we can work out an alternative schedule.

Communication:

All communication for this class will be through your official CU email account and Canvas. Note that I cannot discuss your course grades and/or assignments from a non-CU account due to FERPA rules. Please check your CU email accounts and canvas regularly for changes in the course schedule or other announcements. This semester, communication will be doubly important. Feel free to email questions/concerns. I will try to respond to all emails within 24 hours. If I have not responded in that window, feel free to email again. However, the night before exams or other assignments are due, there is a distinct possibility that I will be unable to respond within an hour. Please be patient with me. There are many of you and one of me. Also, my responses will become increasingly terse with the volume of emails. This is not personal, it is just me trying to answer as many emails as quickly as possible. Bottom line: do not hesitate to email me, but also make sure to give me time to respond.

Course Schedule (subject to change):

This course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Key for readings:
- FPSR -- *Fundamentals of Political Science Research*
- R -- *Statistics with R: Solving Problems Using Real-World Data*

Week 1: Introduction to the Course (8/24-8/28)		
Reading: - The Syllabus - FSPR Chapter 1	Lab Topic: Downloading and Using R, R Studio	Lecture Topics: - Introduction to the course - How to Study Politics
Assignments: Syllabus Quiz (due 8/28)		
Week 2: Theory and Causality (8/31-9/4)		
Reading: - FSPR Chapters 2-3 - Brancati Chapter 3-4 (on Canvas)	Lab Topic: - Doing Library Research - Research Questions	Lecture Topics: - Theory in Political Science - Causality
Assignments: Reading Quiz (due 8/31)		
Week 3: Research Design and Measurement (9/8-9/11)		
Reading: - FSPR Chapters 4-5 - R Chapter 1	Lab Topic: - Finding Data - Loading Data into R	Lecture Topics: - Research Design - Measurement
Assignments: - Reading Quiz (due 9/9) - Homework 1 (due 9/11)		
Week 4: Dealing with Data (9/14-9/18)		
Reading: - FSPR Chapter 6 - R Chapter 2	Lab Topic: Data Management	Lecture Topics: - Measurement Metrics - Descriptive Statistics
Assignments: - Reading Quiz (due 9/14) - Homework 2 (due 9/18)		
Week 5: Probability and Statistics Crash Course (9/21-9/25)		
Reading: - FSPR Chapter 7 - R Chapter 4	Lab Topic: - Descriptive Statistics - Basic Plots	Lecture Topics: - Basic Probability Theory and Normal Distribution - Confidence Intervals
Assignments: - Reading Quiz (due 9/21) - Homework 3 (due 9/25)		
Week 6: Bivariate Hypothesis Testing (9/28-10/2)		

Reading: • FSPR Chapter 8 • R Chapters 5, 6, 8	Lab Topic: • Bivariate Hypothesis Testing	Lecture Topics: • Tabular Analysis • Difference of Means • Correlation Coefficients
Assignments: • Reading Quiz (due 9/28) • Homework 4 (due 10/2)		
Week 7: Regression Basics(10/5-10/9)		
Reading: • FSPR Chapter 9-10 • R Chapter 9	Lab Topic: • Bivariate Regression	Lecture Topics: • Bivariate Regression • Multiple Regression
Assignments: • Reading Quiz (due 10/5) • Homework 5 (due 10/9)		
Week 8: Categorical Variables and Interactions (10/12-10/16)		
Reading: • FSPR pp. 246-258 • R Chapter 9.1-9.8	Lab Topic: • Multiple Regression	Lecture Topics: • Categorical Independent Variables • Interactive Models
Assignments: • Reading Quiz (due 10/12) • Midterm Exam I (due 10/16)		
Week 9: Regression Diagnostics and Fixes (10/19-10/23)		
Reading: • FSPR pp. 207-212; 258-270 • R Chapter 9.9-9.10	Lab Topic: • Regression with Categorical IVs • Interactive Models	Lecture Topics: • Regression Assumptions and Diagnostics • Regression Fixes
Assignments: • Reading Quiz (due 10/19) • Homework 6 (due 10/23)		
Week 10: Limited Dependent Variables (10/26-10/30)		
Reading: • FSPR pp. 273-282 • R Chapter 10	Lab Topic: • Regression Diagnostics	Lecture Topics: • Linear Probability Model • Logit/Probit
Assignments: • Reading Quiz (due 10/26) • Homework 7 (due 10/30)		
Week 11: Time Series (11/2-11/6)		
Reading: • FSPR pp. 282-296 • Canvas	Lab Topic: • Regression with a limited DV	Lecture Topics: • The problem of time series • Time Series Fixes
Assignments: • Reading Quiz (due 11/2)		

• Homework 8 (due 11/6)		
Week 12: Datasets – Cleaning and Working with Data (11/9-11/13)		
Reading: • R Chapters 1-2	Lab Topic: • Time Series Models	Lecture Topics: • Data Management • Replication
Assignments: • Reading Quiz (due 11/9) • Homework 9 (due 11/13)		
Week 13: Presenting Regression Results (11/16-11/20)		
Reading: • R Chapter 3 • Canvas	Lab Topic: • Data Management	Lecture Topics: • Using Effective Tables • Effective Figures
Assignments: • Reading Quiz (due 11/16) • Homework 10 (due 11/20)		
Week 14: Writing A Research Paper (11/23-11/25)		
Reading: • Canvas	Lab Topic: • Making Tables and Figures in R	Lecture Topics: • Putting together all the parts • Academic Honesty and Citing
Assignments: • Reading Quiz (due 11/23) • Midterm Exam II (due 11/25)		
Week 15: Finishing Your Paper(11/30-12/4)		
Reading: • None	Lab Topic: • None	Lecture Topics: • None
Assignments: • Make an appointment with me to talk about your paper		
Week 16: Finishing Your Paper(12/7)		
Reading: • None	Lab Topic: • None	Lecture Topics: • None
Assignments: • Final Paper Due		

FINAL PAPER DUE 12/7 AT 7PM

University of Colorado Policies

Classroom Behavior
Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on classroom behavior and the Student Code of Conduct.

Requirements for COVID-19
As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements, and public health orders in place to reduce the risk of spreading infectious disease. Required safety measures at CU Boulder relevant to the classroom setting include:

- maintain 6-foot distancing when possible,
- wear a face covering in public indoor spaces and outdoors while on campus consistent with state and county health orders,
- clean local work area,
- practice hand hygiene,
- follow public health orders, and
- if sick and you live off campus, do not come onto campus (unless instructed by a CU Healthcare professional), or if you live on-campus, please alert CU Boulder Medical Services.

Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to Student Conduct and Conflict Resolution. For more information, see the policies on COVID-19 Health and Safety and classroom behavior and the Student Code of Conduct. If you require accommodation because a disability prevents you from fulfilling these safety measures, please see the "Accommodation for Disabilities" statement on this syllabus.

Before returning to campus, all students must complete the COVID-19 Student Health and Expectations Course. Before coming on to campus each day, all students are required to complete a Daily Health Form. *In this class, you may be reminded of the responsibility to complete the Daily Health Form and given time during class to complete it.*

Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home and complete the Health Questionnaire and Illness Reporting Form remotely. In this class, if you are sick or quarantined**,** contact the instructor to inform her of your absence (you don't need to tell me the exact nature of your illness). Keep on top of your assignments as much as possible, and complete the day's in-class work at home, then submit it on campus.

Accommodation for Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see Temporary Medical Conditions on the Disability Services website.

Preferred Student Names and Pronouns
CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code
All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu); 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation
The University of Colorado Boulder (CU Boulder) is committed to fostering an inclusive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website.

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Religious Holidays
Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, please inform me via email with at least one week's notice. We can then find the best accommodation. See the campus policy regarding religious observances for full details.