Pol Sci 390: Political Data Analysis
Fall 2021
Tuesdays 9:30-10:45
191 Mitchell Hall and Online

Primary Instructor:
Professor Thomas M. Holbrook
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Teaching Assistant:
Gina Vlach
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Office hours: online, by appointment. Course Website Address: https://uwm.edu/canvas/

IMPORTANT:

This is a Hybrid Course, meaning it incorporates both face-to-face and online instruction. Everything you are required to complete—weekly assignments, quizzes, writing assignments—must be turned in online. Our meetings each Tuesday will focus on the material related to the assignment(s) that are due at the end of that week. Therefore, I highly recommend that you look ahead to the readings and assignments for that week and come to class prepared with questions you may have on the material, the application of the concepts, or the calculation process itself.

Please remember that I will be sending everything to your **UWM** email account. If you don't regularly use that account, make sure you check it or forward it to an account you do use regularly.

COVID-19 PRECAUTIONS

Panther Community Health and Safety Standards: UWM has implemented reasonable health and safety protocols, taking into account recommendations by local, state and national public health authorities, in response to the COVID-19 pandemic. As a member of our campus community, you are expected to abide by the Panther Interim COVID-Related Health & Safety Rules, which were developed in accordance with public health guidelines. These standards apply to anyone who is physically present on campus, UWM grounds, or participating in a UWM-sponsored activity:

- All individuals visiting UWM facilities must wear face coverings while indoors;
- Unvaccinated students coming to campus are required to test weekly for COVID-19; and,
- You should check daily for COVID-19 symptoms and not come to campus if you are feeling sick.
- Additional details about student and staff expectations can be found on the UWM COVID-19 webpage.

Prerequisites:
Junior standing and successful completion of UWM Quantitative Literacy Part A requirement, which can be satisfied with at least one of the following: 1) a grade of C or higher in Math 103(106), 105, 109/175 (or any course for which 103(106), 105, 109/175 are prerequisites); 2) attaining a satisfactory score (30 or higher) on the Mathematics Placement Test; or 3) earning at least 2.5 credits with a grade of C or higher in equivalent or higher-level mathematics courses that transfer to UWM.

Course Content:

This course is designed to provide you with a broad introduction to quantitative studies in political science, with an emphasis on methods that provide a foundation for multiple regression analysis. Although you will learn about statistics, this is not purely a statistics course. Instead, it can be thought of as a course on quantitative aspects of political science. While a minimum amount of mathematic ability is required (hence prerequisites listed above), this course stresses an intuitive and applied understanding of statistics in the context of social and political data analysis. The goal of this course is not just to teach you how to calculate and produce statistics, but, more importantly, how to use and interpret those statistics in a way that helps you make sense of the social and political world.

If you receive a grade of B+ or higher in this course, I would be comfortable with you listing Data Analysis and R as skills on your resume, with a designation of "Basic" as your level of expertise.

QSDA Certificate

This course fulfills one of the requirements for the Quantitative Social Data Analysis (QSDA) Certificate. If you are interested in learning more about this certificate program, please contact either myself (holbroot@uwm.edu) or Professor Aki Roberts at qsda@uwm.edu .

UWM Quantitative Literacy Part B Definition and Outcomes

This course satisfies UWM's Quantitative Literacy Part B requirement. As such, students will be evaluated for competence in recognition, construction, and use of appropriate statistics to interpret and analyze quantitative information to make reasonable conclusions and inferences about political phenomena.

In addition to the course-specific outcomes listed above, the following QL Part B outcomes apply:

> 1. Students will recognize and construct mathematical models and/or hypotheses that represent quantitative information.
> 2. Students will evaluate the validity of these models and hypotheses.
> 3. Students will analyze and manipulate mathematical models using quantitative information.
> 4. Students will reach logical conclusions, predictions, or inferences.
> 5. Students will assess the reasonableness of their conclusions.

Assessment

The primary tools for evaluating competence on these dimensions outlined above are textbook assignments (Concept and Calculations), **R** data analysis and interpretation assignments, several short quizzes, and two writing assignments

Expected Time Commitment

This is a three-credit course, so the expected time commitment from students for the semester is approximately 144 hours. Of course, the distribution of time spent will vary by student.

Instructor Availability

You should feel free to contact the teaching assistant or me via email with any questions you have regarding the course or to set up *an individual office hours session*. The best time to contact us is during the day (9:00 am-4:30 pm) during the work week (Monday-Friday). We will do our best to respond to your questions promptly, but we might not be able to respond right away, and you may end up waiting a while to hear back. Hence, you should not wait until the end of the week to ask questions about assignments that are coming due, as we might not get back to you in time to be helpful.

You should contact the teaching assistant regarding weekly homework assignments and general questions you have about the material. Questions you send to the teaching assistant may be routed to me for input. You should contact me regarding questions related to the quizzes and writing assignments. Of course, if you have trouble getting in touch with either of us, go ahead and contact the other.

Graduate Students:

Students taking this for graduate credit must complete all required assignments AND complete two writing assignments. Let me know ASAP if you are a graduate student.

Reading Material:

This is where things get a bit strange. There is no traditional textbook for this course. Instead, I am posting material from lecture notes I have developed over the years. Most of these notes will be converted to book chapters by the end of the semester. Right now, there are six chapters posted, and I hope to stay ahead of things and have most of the notes posted as chapters before you get to the material. My sense is that this might be a little optimistic on my part, so you may end up with updated "notes" instead of book chapters toward the end of the semester.

I urge patience as you read through the chapters/notes. These are early drafts, so there are undoubtedly going to be some typos and other sorts of errors. However, the instructions regarding statistics and computer commands should all be in good shape.

If you find errors, please forward them to the teaching assistant and they will keep track of them so changes can be made.

Weekly Work:

There are two types of assignments for this course: those that are based on understanding the concepts and calculations presented in the book/notes and class discussion, and those that require you to do a bit of programming and data analysis on your own.

Concept and Calculation problems are **due at 11:59 p.m. on Friday** evening, *except during the shortened first week*, when they are due on Saturday evening. These problems focus on understanding statistical concepts and calculations and may require a bit of calculations on your part. When this is the case, be sure to show all steps of your calculations. Doing so will help us assign partial credit if you get the problems wrong and will also help us identify where errors occur and provide you with constructive feedback.

The **R problems** require that you use R, a programming language that facilitates data analysis. These problems are also due at **11:59 p.m. on Friday** evenings. In addition to being free, R helps students develop some basic programing skills and forces students to think a bit more systematically about the problems they are trying to solve. The primary resource for learning to use R is through the book chapters, class meetings, and the R assignments. R can be a bit intimidating, but I think you will be fine if you keep up with the material and give yourself plenty of time to do the labs. The book chapters and lectures include a lot of examples of R code, but the real key to learning R for this course is working through the labs and doing the required problems.

One other way we will ease the transition to R is by using **R-Studio**, a graphical user interface (GUI) that helps organize different parts of the R process and also provides some built-in functions that offer helpful hints as users are inputting their commands. We will be using **RStudio Cloud,** an online portal to R Studio. Students should **sign up for a free RStudio Cloud account right away** (https://rstudio.cloud). You will be sent a link to join the Pol Sci 390 workspace and some instructions during the first week.

Quizzes. There are no exams in this course. Instead, there are very brief (7 or 8 questions) quizzes about every two or three weeks (six quizzes total). These quizzes are "open note" and will focus exclusively on the **book/lecture notes**. There is a time limit on each quiz, equal to ninety seconds per question (e.g., 7.5 minutes for a five-question quiz). See the semester schedule at the end of the syllabus for quiz dates.

Writing assignments:

There are two related writing assignments that require students to develop hypotheses and conduct independent data analysis on one of several topics that I make available. By "choice," I mean that students can choose from a limited number of prescribed topics and variables.

The first writing assignment focuses on the use of descriptive statistics and testing bivariate relationships using Analysis of Variance (ANOVA). The second writing assignments expands upon the first, requiring students to use correlations, scatterplots, and multiple regression. Information on the writing assignment will be provided a few weeks into the semester once you've developed a bit of expertise.

Your Grade:

Concepts/Calculations	25%
R problems	35%
Quizzes	20%
Writing Assignments	20%

Grades will be calculated on the following scale (%):

A	**93-100**	**A-**	**89-92**
B+	**86-88**	**B**	**82-85**
B-	**78-81**	**C+**	**75-77**
C	**71-74**	**C-**	**67-70**
D+	**64-66**	**D**	**60-63**
D-	**56-59**	**F**	**0-55**

Make-up Policy:

Typically, late work is not accepted and any student who misses an assignment will not be able to make it up, with exceptions granted in only in the most severe and unavoidable circumstances (death in the family, severe illness, incarceration, etc.), with documentation and prior notice required. Given the current public health context, there is some extra flexibility this semester.

Accommodations:

Students with physical or learning differences that require accommodations should see me right away so we can address your needs.

Students in Need

Any student who faces challenges securing their food, housing, or technology, or is struggling with mental, physical, or emotional health, and believes this may affect their performance in the course is urged to contact the Dean of Students (dos@uwm.edu) for support. Furthermore, please notify the professor if you are comfortable doing so. This will enable them to provide any resources that they may have and can connect you to the Dean of Students as well.

Other Policies:

Information on campus policies related to grade appeals, religious observances, military call ups, and similar issues can be found at: http://uwm.edu/secu/wp-content/uploads/sites/122/2016/12/Syllabus-Links.pdf

If you are reading the syllabus closely, send an email to Gina Vlach (gnvlach@uwm.edu) by 9/15/2021 with "I'm reading the syllabus" in the memo line. I'll give you an extra credit point on one of your weekly assignments.

Schedule

Week	Topic	Concepts/ Calculations	R Problems	Quiz
Sept. 5th	Doing Social Science Research using R	X		
12th	Frequencies and Graphs		X	
19th	Data Transformations		X	
26th	Central Tendency	X	X	X
Oct. 3rd	Dispersion	X	X	
10th	Probability	X		X
17th	Sampling and Inference	X	X	
24th	Hypothesis testing		X	X
31st	Comparing means—several groups (ANOVA)	X	X	
Nov. 7th	Crosstabs	X		
First Writing Assignment Due November 15				
14th	Measures of Association		X	X
21st	Correlation and Scatterplots	X	X	
28th	Regression I	X	X	X
Dec. 5th	Regression II	X	X	
12th	Regression III		X	X
Second Writing Assignment Due December 18				