

## **POSC 3410: Quantitative Methods in Political Science**

Spring 2026 Syllabus

MW 2:30-3:45 pm – Bracket 233

### **Instructor Information.**

**Instructor:** Alex Honeker

**Email:** jhoneke@clemson.edu

**Office:** Bracket 231-A

**Office Hours:** Mon/Wed 1:00-2:00 pm, Tue/Thu 3:45-4:45 pm. If these times do not work for you, please send me an email and we can find another time to meet.

### **Course Description (Clemson Catalog).**

Introduction to quantitative research methods in political science. Topics include research design, measurement, data collection, sampling procedures, and applications of statistical techniques to research problems in political science. Also stresses computer use for elementary data analysis.

### **Course Overview.**

This course introduces the basics of scientific research in political science. We will explore how to formulate a research question, identify and operationalize dependent and independent variables, conduct a review of scientific literature, develop a theory and testable hypotheses, identify data sources, collect and analyze data, and empirically test relationships between variables. Students will also learn how to use R for basic data analysis, generate summary statistics, and explore data through visualization.

### **Course Learning Objectives:**

By the end of this course, students will be able to:

1. Formulate a research question.
2. Conduct a literature review.
3. Develop a theory and testable hypotheses.
4. Understand measurement and types of variables.
5. Identify, collect, and analyze data.
6. Apply quantitative research to an independent research project.
7. Learn the basics of the R programming language for data analysis.

### **Course Prerequisites.**

This course does not have any specific pre-requisites. However, students are heavily encouraged to take this course after having taken one of the substantive introductory political science courses

(POSC 1040, POSC 1020, or POSC 1010). These courses will help ensure you have a general understanding of basic political science concepts and theories.

### **Required Materials.**

- Kellstedt, Paul M., & Whitten, Guy D. (2018). *The Fundamentals of Political Science Research. Third Edition*. Cambridge University Press.
- Kellstedt, Paul M., & Whitten, Guy D. (2021). *An R Companion for the Third Edition of The Fundamentals of Political Science Research*. Cambridge University Press.
- All other reading materials will be provided by the instructor on Canvas.

### **Required Software.**

We will use R (and R Studio), a free, open-source programming language and software for data analysis. R is a very popular software for a wide variety of industries and academic fields, so learning how to use it will provide you with valuable marketable skills.

### **Evaluation Criteria.**

Your grade will consist of the following components:

1. Participation **15%**
2. In-Class Assignments **10%**
3. Problem Sets (x5) **25%**
4. Research Project **50%**
  - a. Research Question **5%**
  - b. Literature Review **10%**
  - c. Theory and Hypotheses **10%**
  - d. Data Analysis **10%**
  - e. Project Draft **20%**
  - f. Project Presentation **10%**
  - g. Final Project **35%**

#### **1. Participation.** Your participation grade will be based on:

- **Attendance (50%):** You are expected to attend every class. Excused absences should be notified to me before class in order to avoid losing points and should be accompanied by a medical or academic excuse (e.g., doctor's note).
- **Engagement (50%):** Attendance is a necessary but not sufficient condition for full participation points. You are expected to read the assigned materials before each week so you can actively participate in class. Engagement includes asking or answering

questions, contributing to small-group discussions, and actively participating in class. Quality of engagement matters more than quantity.

**2. In-Class Assignments.** There will be a series of in-class assignments during the semester (approximately 8-10). Some of these assignments will be based on the readings from that week (so you need to come to class prepared), and some will be based on material covered in class (so you need to pay attention to class). Each assignment will be graded on a three-level scale:

- *Achieved (100%):* excellent effort and correct completion of the task.
- *Attempted (70%):* reasonable effort but incomplete, incorrect, or superficial.
- *Not Acceptable (0%):* no meaningful attempt or missing.

In-class assignments cannot be made up except in cases of documented, excused absences that are communicated to the instructor before class.

**3. Problem Sets.** This is a hands-on course thus there will be 5 take-home problem sets throughout the semester in which you will demonstrate your mastery of the content discussed and showcased in class. These problem sets are designed to build data analysis skills that directly support the research project. Most of these problem sets will require you to use R to turn in your responses. Unless otherwise specified, problem sets must be completed individually. You may discuss general concepts with classmates, but all submitted work must be your own. A detailed explanation of each assignment will be posted on Canvas. See due dates in the course schedule. Each PS is worth 5% of your final grade.

**4. Research Project.** As a research design course, the main component of your grade will be the development of your own research project in different stages. Each component will follow the course schedule and will build towards the next step, so it is essential that you come to class and engage with the material to be able to succeed in this course. There are seven components to the Research Project grade (see due dates in the course schedule):

- a. Research Question 5%
- b. Literature Review 10%
- c. Theory and Hypotheses 10%
- d. Data Analysis 10%
- e. Project Draft 20%
- f. Project Presentation 10%
- g. Final Project 35%

The percentages listed for each research project component above refer to their weight within the Research Project grade (50%), not the final course grade. A more detailed description of each of these individual components will be provided on Canvas.

## **Grading Scale.**

Letter grades will be determined in the following way:

A = 90-100

B = 80-89.99

C = 70-79.99

D = 60-69.99

F = <60

## **Grading Policies.**

I do not round up grades. Please do not ask this at the end of the semester. Regrade requests for specific assignments must be made within three days after your graded assignment has been returned and must be submitted with a written statement of at least 150 words via email. This statement should explain why you think the grade should be changed. Remember that, after re-evaluating your work, your grade may remain unchanged or be adjusted in either direction.

## **Late Assignments.**

Late assignments will be penalized with a 5% reduction in the grade per calendar day unless you provide a documented medical excuse.

## **Attendance Policy.**

Students are expected to attend all classes unless they have an excused medical or academic absence, which must be documented and communicated to the instructor in advance. As noted above, attendance will be taken in every class. To avoid losing participation points, students should notify me of excused absences before class.

## **AI Policy.**

The use of artificial intelligence (AI) tools is permitted in certain circumstances in this course. You will be informed in class when these tools will be permitted. Your responsible use of AI tools must be documented and cited, and you must be able to demonstrate understanding of the content of any work submitted. Outside of these circumstances, AI tools should not be used for your work. The use of AI tools is not permitted for writing your research project or completing assignments. The skills and knowledge we are building in this class are meant to come from your own thinking and effort, not AI, in order to support your mastery of course material. Concerns regarding potential violations of this policy will be reviewed through the appropriate university academic integrity process.

## Classroom Conduct.

Students are expected to attend class on time and to actively engage in class discussions and activities. Additionally, students are expected not to engage in any behavior that may disrupt the learning process. Students are encouraged to actively participate in class discussions in an environment of free and open intellectual exchange and mutual respect. Any kind of disrespect towards another individual will not be tolerated.

## Course Schedule.

The schedule below is tentative; changes may be necessary and will be announced by the instructor in class and/or via Canvas.

### Week 1 | Jan 7 | Class introduction

- Reading: Syllabus

### Week 2 | Jan 12-14 | The scientific study of politics

- Scientific method
- Empirical vs. normative statements
- Readings:
  - Textbook Ch. 1

### Week 3 | Jan 21 (No class on Jan 19 - MLK Day) | Theory-building I

- Research questions
- Dependent and independent variables
- Readings:
  - Textbook Ch. 2, pp. 25-38
- ***DUE Jan 22: Research Question***

### Week 4 | Jan 26-28 | Theory-building II

- Identifying variation
- Literature reviews
- Readings:
  - Textbook Ch 2., pp. 38-51
- ***DUE Jan 29: Problem Set 1***

### Week 5 | Feb 2-4 | Causal Relationships

- Establishing causal relationships
- Deterministic vs. probabilistic relationships
- Spurious relationships
- Readings:
  - Textbook Ch. 3
- ***DUE Feb 5: Problem Set 2***

### Week 6 | Feb 9-11 | Research Design I: Experiments

- Experimental designs
- Internal vs. external validity
- Readings:
  - Textbook Ch. 4, pp. 77-92
  - Busby, Ethan C., James N. Druckman, and Alexandria Fredendall. (2017). “The Political Relevance of Irrelevant Events.” *Journal of Politics* 79.
- **DUE Feb 12: Literature Review**

### Week 7 | Feb 16-18 | Research Design II: Observational Studies

- Observational studies
- Cross-sectional vs. time-series
- Readings:
  - Textbook Ch. 4, pp. 92-100
  - Polk, Jonathan, and Guri Rosén. (2024). “Trade and the transnational cleavage in European party politics.” *Journal of European Public Policy* 31.
- **DUE Feb 19: Problem Set 3**

### Week 8 | Feb 23-25 | Operationalization and Measurement

- Quantifying political concepts
- Validity, reliability, and measurement bias
- Case selection
- Readings:
  - Textbook Ch. 5
  - Geddes, Barbara. (1991). “How the Cases You Choose Affect the Answers You Get: Selection Bias in Comparative Politics,” pp. 131-141.
- **DUE Feb 26: Theory and Hypotheses**

### Week 9 | Mar 2-4 | Data I: Description and Visualization

- Categorical, ordinal, and continuous variables
- Descriptive statistics
- Visualizing variables (histograms, density plots, bar plots, box and violin plots)
- Readings:
  - Textbook Ch. 6
  - Chang, Winston. (2025). *R Graphics Cookbook*. <https://r-graphics.org/>
    - See specific sections for the type of graph we are making.

### Week 10 | Mar 9-11 | Data II: Working with Data

- Finding data sources
- Exploring and cleaning data
- Looking for red flags in your data
- Readings:
  - Chang, Winston. (2025). *R Graphics Cookbook*. <https://r-graphics.org/>
    - Ch. 15 (“Getting your data into shape”).
- **DUE Mar 12: Problem Set 4**

**Week 11** | Mar 16-18 | **Spring Break**

**Week 12** | Mar 23-25 | **Probability**

- Populations vs. samples
- Central limit theorem and the normal distribution
- Readings:
  - Textbook Ch. 7
- ***DUE Mar 26: Data Analysis***

**Week 13** | Mar 30-Apr 1 | **Bivariate Hypothesis Testing**

- Difference in means
- Correlation coefficient
- Scatterplots
- Readings:
  - Textbook Ch. 8, pp. 161-166, pp.173-184
- ***DUE Apr 2: Problem Set 5***

**Week 14** | Apr 6-8 | **Bivariate Linear Regression**

- Estimating the regression line
- Ordinary least squares (OLS) regression
- Scatterplots II
- Readings:
  - Textbook Ch. 9
- ***DUE Apr 9: Project Draft***

**Week 15** | Apr 13-15 | **Project presentations.**

- ***DUE in class: Project presentation***

**Week 16** | Apr 20-22 | **Project presentations.**

- ***DUE in class: Project presentation***
- ***DUE Apr 21: Final Project***

## **University Policies.**

You can find information about campus wide policies, including student affairs information and accessibility services, by clicking on [Clemson's University Policies Page](#). There, you can find information about academic integrity, access and equity (including student accessibility and Title IX info), student financial services, emergency planning, and more. My expectation is that you will review these policies carefully and be responsible for them this semester.

### **Student Accessibility Services.**

Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should let the instructor know and make an appointment to meet with a staff member in [Student Accessibility Services](#) as soon as possible. You can make an appointment by calling 864-656-6848, by emailing [CUSAS@clemson.edu](mailto:CUSAS@clemson.edu), or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged – drop-ins will be seen, if at all possible, but there could be a significant wait due to scheduled appointments. Students who have accommodations are strongly encouraged to [request, obtain, and send these](#) to their instructors via SAS as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester.

### **Title IX.**

The Clemson University Title IX statement: Clemson University is committed to creating and continuously fostering a caring community based on the core values of integrity, honesty and respect. Sexual discrimination, which includes sexual harassment, sexual violence, stalking and domestic and/or relationship violence, is unacceptable and has no place in Clemson's community. Consistent with its Title IX obligation, the University prohibits discrimination, including sexual and gender-based harassment and violence, in all its programs and activities, including academics, employment, athletics, and other extracurricular activities. This [Title IX policy](#) is available online. Katherine Weathers is the Clemson University Title IX Coordinator and VP of Inclusive Excellence. She can be reached at (864) 656-3413 or via email at [kweath3@clemson.edu](mailto:kweath3@clemson.edu). Remember, email is not a fully secured method of communication and should not be used to discuss Title IX issues.

### **Academic Integrity.**

As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. Using

materials generated using artificial intelligence (AI) that are turned in without attribution is considered plagiarism.

All infractions of academic dishonesty by undergraduates must be reported to Undergraduate Studies for resolution through that office. In cases of plagiarism instructors may use the Plagiarism Resolution Form. See the following resources:

- [Undergraduate Academic Integrity Policy](#)

### **Tech Support.**

If you have trouble with Canvas or another university system, check here first: [Clemson System Status](#). There, you can see if there is a current issue and when it might be resolved. If there's no current issue listed, try logging out and quitting your browser before trying again. You can also look in the [Canvas Help Guides](#) for more information.

The CCIT Support Center at Clemson offers a wide range of support options and hardware repair with several contact methods to help you answer your questions as quickly as possible:

- Phone: (864) 656-3494
- Email: [ITHelp@clemson.edu](mailto:ITHelp@clemson.edu)
- Entire catalog of IT services, including an online chat and the Knowledge Base at: [IT Help and Support](#)

Officially, Canvas supports all the major web browsers: Chrome, Firefox, Edge, and Safari. However, Safari is not fully compatible; images often do not show up in Safari, so Clemson Online recommends against using it with Canvas.

Canvas also has mobile apps available for teachers, students, and parents, all of which can be found in your mobile device's app store. These apps are convenient, but do not necessarily display or connect to every component of a Canvas site. They are good for assignment reminders, announcements, and messaging, but not as good for reading materials, taking exams, or building elements.

### **Online Testing.**

By enrolling in a course with online assessments, the student agrees and consents to the use of an online test proctoring service or software program as described above. The student also agrees to allowing the student, their activity, and surrounding workspace to be recorded by video and audio and then analyzed by the test proctoring system, the course instructor, and others at Clemson University. For more information see the Academic Regulations section of the Undergraduate Catalog.

### **Emergency Preparedness Statement.**

[Emergency procedures](#) can be found on the Clemson University Emergency Management website and in the purple-covered flipbooks located in offices and classrooms through campus. Students and employees should ensure they are signed up to receive [CU Alert](#) text messages, familiarize

themselves with emergency procedures and follow all directions from emergency responders in the event of an emergency. More information about safety resources available at Clemson University can be found at [Clemson.edu/CUSafety](http://Clemson.edu/CUSafety).

### **Academic Success Center.**

The [Academic Success Center](#) (ASC) offers a variety of free learning and success services for all undergraduate students that include:

Mastery of course content:

- Tutoring – students can expect a 1:1 meeting with a trained undergraduate peer leader (who made an A or B in the course and was recommended by a faculty member) during which the student can share specific questions they have about course content with the tutor focused on helping the student, through questioning techniques and identification of helpful learning strategies, and master course concepts. Tutors do not help with homework or other class assignments.
- Peer-Assisted Learning (PAL) – students can expect collaborative and active group learning and study sessions focused on mastery of course content and learning strategies that is facilitated by a trained undergraduate peer leader (who made an A or B in the course and was recommended by a faculty member). PAL leaders do not help with homework or other class assignments.

Learning and Success Strategies:

- Academic coaching – students can expect a 1:1 meeting with a trained professional academic coach during which the coach helps students see themselves, their skills, and their study habits from a fresh perspective through one-on-one sessions focused on learning and personal success strategies.
- Success strategy workshops – students can expect 30-45 minute workshops on college success skills, time management and organizational skills, test-taking strategies, study strategies, finals preparation, life skills, and academic resources.
- CU 2100 (Academic Resilience and Success Skills Course) - students experiencing academic difficulty can expect a course focused on academic and personal skill building to help them improve their academic standing.

ASC services are designed to equip students with strategies and resources they can use to:

- Succeed in their courses
- Become more confident, independent, and skillful learners
- Engage in more productive and effective study and learning strategies
- Manage their time more effectively

Location: The Class of 1956 Academic Success Center building is located in the center of campus adjacent to Cooper Library and the Watt Family Innovation Center.

## **Clemson Libraries.**

### **Do you need academic sources but don't know where to start?**

Don't spend hours searching on your own -- ask a librarian! The Libraries provide time saving [online guides for subject areas](#) that can help you find articles, databases, books and more. Personalized research assistance with [librarians who specialize in subject areas](#) is available by appointment. Help is available in person at each of our many [locations](#) and you can also chat with a librarian live from our [website](#), or text [864.762.4884](#).

### **Do you need to verify a book, article, or data set suggested by AI to support your research or paper?**

You can check out the [online catalog](#), use the [Libraries AI Research Assistant](#), use verified AI research tools embedded in databases like [JSTOR](#) and [EBSCO](#), or chat with a librarian for quick help. There is also an online guide about [AI Tools for Research](#) and a [10 Step AI Challenge](#) that you can explore to find out more about AI tools.

### **Not sure how to cite a source properly in your bibliography?**

There are [online guides](#) to help you with any citation style as well as citation management tools available for Clemson students: [RefWorks](#) & [Endnote](#). There are also [interactive online courses](#) with tips to help you understand and avoid plagiarism.

### **Working on a creative project like creating a video or 3D object?**

For assistance with digital and hands-on creative projects, the [Adobe Studio and Makerspace](#) is located on the 5th floor of Cooper Library and is staffed with experts who can help turn your creative ideas into reality. You can even [check out many different kinds of equipment](#) like high resolution cameras, green screens, and projectors from our library services desk in Cooper Library.

### **Need help making a chart or graph to help visualize your data?**

The [Data Visualization Lab](#) on the 4th floor of Cooper provides support for data visualization, data analysis, and digital research methods.

No matter what your research needs, check out what the Clemson Libraries have to offer! [www.libraries.clemson.edu](http://www.libraries.clemson.edu)

## **Clemson Writing Lab.**

The Writing Lab is a valuable resource available to all students in this course. It offers individualized assistance to help you strengthen your writing skills and enhance the quality of your written assignments. Whether you need help with brainstorming ideas, organizing your thoughts, developing a thesis statement, improving grammar and punctuation, or any other aspect of writing, the Writing Lab consultants are there to support you. Appointments can be scheduled online, and walk-in sessions may also be available. You can learn more on their website: [www.clemson.edu/writing-lab](http://www.clemson.edu/writing-lab). Use of the Writing Lab is encouraged as it is a valuable resource to develop your writing abilities and improve your academic performance. The Writing Lab is located on the third floor of Cooper Library.