POS 3703 - Scope and Methods of Political Science

Section: 0004

College of Sciences

School of Politics, Security, and Intl Affairs

Course Information

Term: Spring 2025
Class Meeting Days: MW
Class Meeting Time: 10:30AM - 11:50AM
Class Meeting Location: HPH O310
Modality: P
Credit Hours: 3.00

Instructor Information

Maren Mainx
Office Location: HPH 0310
Office Hours:
W 12:00 PM - 1:30 PM*

*Please note that all meetings during office hours should be previously scheduled using the following link: https://calendly.com/mainx .

If you wish to meet outside my office hours, please send me an email to schedule an appointment.

Email: maren.mainx@ucf.edu

Course Description

POS 3703 COS-POLS 3(3,0) Scope and Methods of Political Science: PR: POS 2041 or C.I. The scope and methodology of political analysis. Extensive examination of the discipline, research design and methodology. Fall, Spring.

Equal parts art, programming, and statistical reasoning, data visualization is critical for anyone who seeks to analyze data (big or small). Data analysis skills have become essential for those pursuing careers in politics, policy evaluation and research in fields like political science or broadly any social science. This course introduces students to the powerful R programming language, the basics of creating data-analysis graphics in R, and reasoning about what data visualizations can tell us, and an introduction to basic quantitative analysis in R.

The best way to understand the how and why of data analysis is to work with real-life data and questions. We will focus on a single political science subject: democracy and the relationship between macro-level indicators, such as economic development and the quality of democracy. Scholars who study global democracy are concerned with understanding what institutional changes in democracy result in an improvement in overall quality of democracy. This process is fundamental to political science research and to policies aiming to improve democracy in America and across the globe. In this class, you will gain a strong introduction to data analysis and visualization through reasoning about the empirical and theoretical challenges of visualizing and describing global democracy.

This is a class about making sense of data. Students will investigate relationships and discover patterns. This is an active process, driven by student engagement. Importantly, there will be weekly homework assignments that students must complete to stay on top of the class. In addition, there will be three main assignments: the midterm, a data visualization presentation, and the final exam.

Course Goals:

(1) The development basic coding skills in the R programming language.

(1.1) Producing an easy-to-understand figure

(1.2) Plotting data distributions

(1.3) Running and interpreting a linear regression (Ordinary Least Squares)

(2) The development of basic research skills:

(2.1) Basic statistics

(2.2) How to statistically analyze data and report one's results

(2.3) The ability to digest the report results in the political science discipline.

Student Learning Outcomes

After successful completion of this course, students will be able to:

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Course Materials and Resources

Data Analysis For Social Science
Authors: Llaudet, Elena and Imai, Kumai
Publisher: Princeton University Press
Publication Date: 2023

Course Assessment and Grading Procedure

Graded Assignments:

Class Participation (10%)

HW assignments (20%)

Lightning Talk Presentation (10%)

Midterm I (15%)

Midterm II (15%)

Final Exam (30%)

Grading Scale

GRADE	PERCENTAGE
A	91.5-100
A-	89.5-91.5
B+	87.5-89.5
B	79.5-87.5
B-	77.5-79.5
C+	75.5-77.5
C	68.5-75.5
C-	66.5-68.5
D+	64.5-66.5
D	57.5-64.5
F	57.5 or less

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points

Due Date	Assignment Name	Assignment Type	Points
	Did you install R and RStudio on your computer?	Discussion	0
	Midterm I	Assignment	100
	Midterm II	Assignment	100
	Participation	Assignment	100
1/10	HW Assignment 1 - Financial Aid	Assignment	5
1/12	HW Assignment 2	Assignment	25
1/22	HW Assignment 3	Assignment	25
1/26	HW Assignment 4	Assignment	50
2/1	HW Assignment 5	Assignment	50
2/19	HW Assignment 6	Assignment	50
2/26	HW Assignment 7	Assignment	50
3/5	HW Assignment 8	Assignment	50
3/12	Feedback Survey	Quiz	0
3/31	HW Assignment 9	Assignment	50
4/7	HW Assignment 10	Assignment	50
4/13	Lightning Presentation	Assignment	50
4/14	HW Assignment 11	Assignment	50
4/26	Extra Credit Assignment	Assignment	0
4/28	Final Exam	Assignment	100

Grading Scale

Letter Grade	Percentage
A	94-100%
A-	90-93%
B+	87-89%
B	84-86%
B-	80-83%
C+	77-79%
C	74-76%
C-	70-73%
D+	67-69%
D	64-66%
D-	61-63%
F	0-60%

Policies for Course Grade

Paper Lateness Policy. Assignments are to be turned in by the day/time they are due. They should be submitted through WebCourses. For every 24 hours that pass thereafter, 5% of credit is lost.

Final Exam Format

You will be asked to define a list of terms that are listed in the textbook as key terms or I have gone over in class as a key term. You will then be asked to answer a number of long answer questions (answers should be about a paragraph) about important research design concepts. I will then ask you to complete a number of data science tasks.

Method of Grade Reporting

Webcourses@UCF.

Make-up Exam Policy

If a student has a valid excuse (medical, religious, university activities, etc.), I will allow students a reasonable amount of time to make-up an assignment. Students must notify me before the due date of an assignment to be allowed to make it up.

Per university policy, make-ups for exams will be given for documented circumstances of illness, official college activities, religious observances, and legal obligations (such as jury duty). Under such circumstances students are required to notify the instructor within 24 hours after missing the exam. In these instances, students are also excused from class without penalty. The Undergraduate Catalog states, “Reasons for acceptable absences may include illness, serious family emergencies, special curricular requirements (e.g., judging trips, field trips, professional conferences), military obligations, severe weather conditions, and religious holidays”.

Course Accessibility

The University of Central Florida is committed to providing access and inclusion for all persons with disabilities. Students with disabilities who need access to course content due to course design limitations should contact the professor as soon as possible. Students should also connect with Student Accessibility Services (SAS) (Ferrell Commons 185, sas@ucf.edu, phone 407-823-2371). For students connected with SAS, a Course Accessibility Letter may be created and sent to professors, which informs faculty of potential course access and accommodations that might be necessary and reasonable. Determining reasonable access and accommodations requires consideration of the course design, course learning objectives and the individual academic and course barriers experienced by the student. Further conversation with SAS, faculty and the student may be warranted to ensure an accessible course experience.

Academic Integrity

Students should familiarize themselves with UCF’s Code of Conduct at Student Conduct and Integrity Office. According to Section 1, “Academic Misconduct,” students are prohibited from engaging in:

a. Academic misconduct is defined as any submitted work or behavior that obstructs the instructor of record's ability to accurately assess the student's understanding or completion of the course materials or degree requirements (e.g., assignment, quiz,

and/or exam). Examples of academic misconduct include but are not limited to: plagiarism, unauthorized assistance to complete an academic exercise; unauthorized communication with others during an examination, course assignment, or project; falsifying or misrepresenting academic work; providing misleading information to create a personal advantage to complete course/degree requirements; or multiple submission(s) of academic work without permission of the instructor of record.

b. Any student who knowingly helps another violate academic behavior standards is also in violation of the standards.

c. Commercial Use of Academic Material. Selling of course material to another person and/or uploading course material to a third-party vendor without authorization or without the express written permission of the University and the instructor of record. Course materials include but are not limited to class notes, the instructor of record's slide deck, tests, quizzes, labs, instruction sheets, homework, study guides, and handouts.

d. Soliciting assistance with academic coursework and/or degree requirements. The solicitation of assistance with an assignment, lab, quiz, test, paper, etc., without authorization of the instructor of record or designee is prohibited. This includes but is not limited to asking for answers to a quiz, trading answers, or offering to pay another to complete an assignment. It is considered Academic Misconduct to solicit assistance with academic coursework and/or degree requirements, even if the solicitation did not yield actual assistance (for example, if there was no response to the solicitation).

Responses to Academic Dishonesty, Plagiarism, or Cheating

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, *The Golden Rule*. UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and respond to academic misconduct when necessary. Penalties for violating rules, policies, and instructions within this course can range from a zero on the exercise to an "F" letter grade in the course. In addition, an Academic Misconduct report could be filed with the Office of Student Conduct and Academic Integrity, which could lead to disciplinary warning, disciplinary probation, or deferred

suspension or separation from the University through suspension, dismissal, or expulsion with the addition of a “Z” designation on one’s transcript.

Being found in violation of academic conduct standards could result in a student having to disclose such behavior on a graduate school application, being removed from a leadership position within a student organization, the recipient of scholarships, participation in University activities such as study abroad, internships, etc.

Let’s avoid all of this by demonstrating values of honesty, trust, and integrity. No grade is worth compromising your integrity and moving your moral compass. Stay true to doing the right thing: take the zero, not a shortcut.

Title IX

Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at Let's Be Clear and UCF Cares.

For more information on diversity and inclusion, Title IX, accessibility, or UCF’s complaint processes contact:

- Title IX – OIE – Office of Institutional Equity & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services – Student Accessibility Services & sas@ucf.edu
- Access and Community Engagement (including the Ginsberg Center for Inclusion and Community Engagement, Military and Veteran Student Success, and HSI Initiatives)
- UCF Compliance and Ethics Office – Compliance, Ethics, and Risk Office & complianceandethics@ucf.edu
- The Ombuds Office is a safe place to discuss concerns.

Reporting an Incident or Issue

If you believe you have experienced abusive or discriminatory behavior by any faculty or staff member, contact the Office of Institutional Equity online or at 407-823-1336. You can also choose to report using the UCF Integrity Line and can report anonymously or as yourself at 1-855-877-6049 or using the online form. UCF cares about you and takes every report seriously. For more information see the Reporting an Incident or Issue Webpage.

Deployed Active-Duty Military Students

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact their instructors as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

Campus Safety

At UCF Public Safety and Police, safety is the top priority. Emergencies on campus are rare, but if one should arise, it's important to be familiar with some basic safety and security concepts.

- In an emergency, always dial 911.
- Every UCF classroom has an **Emergency Procedure Guide** posted on a wall near the door, which will show you how to respond to a variety of situations. This guide can also be found online here.
- In the event of an active threat, remember **AVOID, DENY, DEFEND**. Choose the best course of action and act immediately. Watch the video here to learn more.
    - **AVOID**. Pay attention to your surroundings and have an exit plan. Get as much distance and as many barriers between you and the threat as quickly as possible.
    - **DENY.** When avoiding is difficult or impossible, deny the threat access to you and your space. Lockdown by creating barriers, turning the lights off and remaining quiet and out of sight. Make sure your cell phone is silenced, but do not turn it off.
    - **DEFEND.** When you are unable to put distance between yourself and the threat, be prepared to protect yourself. Commit to your actions, be aggressive

and do not fight fairly. Do whatever it takes to survive.

- For emergencies on campus, UCF will utilize the UCF Alert system. All UCF students, faculty and staff are automatically enrolled to receive these email and text alerts, however, it's a good idea to frequently ensure your contact information is up to date.

Financial Aid Accountability

All instructors/faculty are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete this activity by the end of the first week of classes or as soon as possible after adding the course. Failure to do so may result in a delay in the disbursement of your financial aid.

Class Schedule

Class Schedule

Date	Topic	Readings	Assignment
Jan. 6	Introduction to the course Course requirements Brief introduction to R	Syllabus	HW 1 Assigned (Jan. 8)
Jan. 8	The science in political science	KKV - Ch. 1	HW 2 Assigned (Jan. 12)
Jan. 13	Introduction to R	Llaudet & Imai (1-16)	HW 3 Assigned (Jan. 22)

Jan. 15	Working with dataframes in R	Llaudet & Imai (16-26) Watkins (Pages 3-4; Pages 24-25).	HW 4 Assigned (Jan. 26)
Jan. 20	***No Class***		
Jan. 22	Randomized Experiments	Llaudet & Imai (27-38)	HW 5 Assigned (Feb. 1)
Jan. 27	Randomized Experiments (Examples)	Llaudet & Imai (39-50)	
Jan. 29	Inferring Population Characteristics (Two-way Tables)	Llaudet & Imai (51-66)	
Feb. 3	Inferring Population Characteristics (Histograms)	Llaudet & Imai (66-76)	
Feb 5	REVIEW DAY		
Feb. 10	**MIDTERM 1**		
Feb. 12	Inferring Population Characteristics (Scatter Plots)	Llaudet & Imai (76-97)	HW 6 Assigned (Feb. 19)

Feb. 17	Predicting Outcomes using Linear Regression	Llaudet & Imai (98-107)	
Feb. 19	Natural Logarithm Transformation	Llaudet & Imai (107-119)	HW 7 Assigned (Feb. 26)
Feb. 24	Interpretation of Linear Regression	Llaudet & Imai (120-128)	HW 8 Assigned (Mar. 5)
Feb. 26	Estimating Causal Effects with Observational Data	Llaudet & Imai (129-147)	
Mar. 3	Internal and External Validity Revisited	Llaudet & Imai (147-161)	
Mar. 5	REVIEW DAY		
Mar. 10	**MIDTERM 2**		
Mar. 12	Axioms of Probability	Llaudet & Imai (162-169)	
Mar. 17 – Mar. 23	Spring Break		
Mar. 24	Normal Distribution	Llaudet & Imai (169-179)	HW 9 Assigned (Mar. 31)
Mar. 26	Population Parameters Versus Sample Parameters	Llaudet & Imai (179-195)	

Mar. 31	Quantifying Uncertainty	Llaudet & Imai (196-211)	HW 10 Assigned (Apr. 7)
Apr. 2	*** NO CLASS ***		
Apr. 7	*** NO CLASS *** but please start with HW#11	Llaudet & Imai (211-229)	HW 11 Assigned (Apr. 14)
Apr. 9	Data Visualization and Addressing Questions on Lightning Presentations	Wilke (Sections 1-25)	
Apr. 14	Lightning Presentations		
Apr. 16	STUDY DAY		
Apr. 21	REVIEW DAY		
Apr. 28	**FINAL EXAM (10:00 AM – 12:50 PM)**		

Syllabus is subject to change at the instructor's discretion. Any changes will be announced in class and on WebCourses.

Course Technologies and Additional Readings

Our course website is hosted on Canvas. The main features of Canvas we will be using are the modules. The modules break the course content down into daily agendas. If you are unsure what you are supposed to be doing for a given day and when, visit the day's module on Canvas. The daily modules will also contain details and links to all the

homework assignments and readings. I will show you how to submit your assignments and see your feedback during the first week of class.

In this class we will use R to work with data. R is free, open-source and interactive programming language for statical analysis. Rstudio is a versatile editor for working with R code and data that provides more intuitive interface to many features of the language.

Both R and Rstudio are widely available for all major operating systems (Windows, Mac OS, Linux). You should install them on your personal computer prior to attending tutorials. Use these links to download the installation files:

R - https://cran.r-project.org/

RStudio - https://www.rstudio.com/products/rstudio/download/

(choose free desktop version)

Readings

Every class period, except for the first week, students will have readings they should consult. Please don't purchase books until you attend first class. On the first day of class the course instructor will explain how to get access.

Required Readings:

- Llaudet, Elena and Imai, Kumai (2023). *Data Analysis For Social Science*. Princeton University Press.

Can be purchased here

Or can be purchased here

- Watkins, J. C. (2019). An introduction to the science of statistics: From theory to implementation (Pages 3-4; Pages 24-25).

Accessible for free online here

- King, G., Keohane, R. O., & Verba, S. (1994). *Designing social inquiry: Scientific inference in qualitative research*. Princeton University Press.

Accessible for free online here

- Wilke, Claus. Fundamentals of Data Visualization.

Accessible for free online here

- Grolemund, Garrett and Hadley Wickham. R for Data Science. https://r4ds.had.co.nz/