

Political Data Analysis

POS 6737 –Class Number 16743 (M.A. course)

Department of Political Science, University of Florida

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OFFICE HOURS: M 1-3, W 11-1 & BY APPT
CLASS MEETS: WEDS 3-6 PM, LIT 0127

1 COURSE DESCRIPTION & OBJECTIVES

This course provides an overview of the statistical tools most commonly used to process, analyze, and visualize data. We will cover descriptive statistics, statistical inference, and hypothesis testing through linear regression with a brief introduction to logistic regression. We will use the statistical package R to transform, visualize and analyze data, with a particular focus on interpreting results for real world application. In each topic area, we will discuss the methodology, including any underlying assumptions, the mechanics of how it all works, along with appropriate interpretation of the results. In most instances, we will make use of real political data across the discipline.

The course has three main goals. First, students are expected to build a good foundation in statistics that would prepare them for learning more advanced statistical tools and analysis. Second, students are expected to learn enough statistical skills to be able to understand as well as engage with published works in political science research that uses statistical analysis as means of testing theoretical arguments. Third, students should be able to analyze real world political data. In the weekly class meeting will be conducted as a lecture-based workshop. Learning how to use available statistical software – in this case R – is a must to succeed in this course.

Specific goals this semester include:

1. developing testable hypotheses
2. developing statistical literacy:
 - a. summarize and display data accurate and effectively
 - b. compute and interpret descriptive statistics
 - c. construct confidence intervals and test hypotheses for numerical variables (t tests)
 - d. prepare contingency tables and test hypotheses for categorical variables (Chi-sq tests)
 - e. build simple bivariate and multivariate linear regression models and interpret the output
 - f. draw appropriate inferences from the results of statistical analyses and report findings
 - g. interpret the results of research as presented in journal articles and the popular press
3. presenting statistical findings professionally
4. developing modern statistical computing skills, including reading/cleaning data, coding etiquette and analysis

2 REQUIRED MATERIALS

2.1 REQUIRED READING MATERIALS

1. Salkind, Neil J., and Leslie A. Shaw. 2020. *Statistics for People Who (Think They) Hate Statistics Using R*. Washington, DC: Sage/CQ Press.
2. Additional readings may be assigned as needed; they will be available on Canvas. Feel free to purchase e-books as you will not be turning in any work from the workbook on paper (just via Canvas).

2.2 TECHNOLOGY REQUIREMENTS

All models in this class will be estimated using R software packages and a standard computer. The following are required to complete the course:

1. A laptop computer with wifi access
2. R statistical computing software and related packages (free and open source; we will set this up together the first day of class)

3 ASSIGNMENTS/ASSESSMENT

3.1 OVERVIEW

Student progress will be measured using multiple methods. The class consists of homework assignments, an in-class written midterm exam, and a final project.

Work diligently and persistently. Attend classes. Read carefully before the seminar meets. Do the work on time. Practice R. Communicating your results to others is as important as getting good results in the first place. Every assignment – homework, exam, paper - requires interpretation and is as important as getting the correct result. **Professionalism matters: do not submit raw computer output as you will not receive credit.**

3.2 WEEKLY PROBLEM SETS (40%):

We will have problem sets almost every week. The problem sets incorporate both the material from the lecture and what we are learning in R. The more you practice, the better you get – and the more you learn. We will start each problem set in class and you will complete it on your own before the next class (and submit to canvas).

While group discussion and work are explicitly encouraged, you are required to submit your own computer code and final write-up of the answers. DO NOT simply copy computer code or answers from your classmates.

All work in the class should be professional: a well-formatted, electronic format (e.g., R Markdown). Late homework is penalized 5% per day; no homework will be accepted more than five days late except in extenuating (documented) circumstances.

The homework may be difficult, especially in the beginning. Keep trying, do not give up.

- Problem Set Grading:
 - A + (39.5-40 points): problem set is 100% complete. Every question was attempted and answered with interpretations, and all are correct. Document is clean and easy to follow (professional). Code is well-written. Work is exceptional. *These are rare.*
 - A (37-39 points): problem set is 85-99% complete and most answers are correct with well written code. *This is the expected level of performance.*
 - (30-36 points): problem set is 75%-84% complete, average performance, some issues with code, answers and interpretation
 - (25-29 points): problem set is less than 75% complete and/or most answers are incorrect. This indicates that you need to improve- *so please come for help so we can strategize early.*
 - Yes, it is possible to earn less than 25 points, but this would be a failing grade for the assignment.

3.3 MIDTERM EXAM (30%):

The in-class midterm will consist of problem sets and some definitions relating to the first part of the class. You will work with a small data set to calculate descriptive and inferential statistics. In addition, you will demonstrate your understanding of the material by the quality of your interpretive skills.

3.4 FINAL PROJECT (30%):

The final will require you to analyze data and present professional results to a client (the instructor). The goal of the final project is to put together a report for your client using the knowledge gained throughout the semester. A well put-together project, can make all the difference at the end of the semester.

3.5 GRADING SCALE:

I will use the following grading scale for those assignments receiving a letter grade as well as your overall grade. Please note that I do not round grades until the final course grade.

A	93-100	B	84-86	C	74-76	D	64-66
A-	90-92	B-	80-83	C-	70-73	D-	60-63
B+	87-89	C+	77-79	D+	67-69	E	<60

4 COURSE POLICIES

4.1 ATTENDANCE/LATE WORK:

Attendance is required. You should come prepared to work. Do not be late to class. I note who attends class/is late, even if it doesn't count toward your course grade. If you must miss class, you will need to get notes from a classmate. Missing even a single class can be difficult to overcome, so do your best to avoid it.

Requirements for **class attendance** are consistent with the attendance policy stated in the Graduate Catalog Regulations found here: <http://gradcatalog.ufl.edu/content.php?catoid=6&navoid=1219>.

Late work is penalized 5% per day and not accepted after five days, documented extenuating circumstances notwithstanding.

4.2 FALLING BEHIND:

This class will move quickly. At first you may feel comfortable with the material, or you may feel intimidated walking in. I am here to help you. If you fall behind, I cannot help you unless you come see me.

5 OTHER POLICIES, CHECK EMAIL MAKE CONSISTENT

5.1 COMMUNICATIONS AND LOGISTICS:

Almost all our work will take place in class, on your own time, and within the Canvas environment. Please feel free to email me at any time. While I try to answer email quickly, I sometimes need 24-48 hours to do so. Please keep in mind that I am not always available via email evenings and weekends.

To protect your federally protected privacy rights, I cannot discuss your grade(s) over the phone, via email, or in front of class. Please make an appointment.

5.2 CURRENT UF GRADING POLICIES/GRADE POINTS:

Information on current UF grading policies for assigning grade points is here: <https://catalog.ufl.edu/graduate/regulations/#text>.

5.3 ACADEMIC MISCONDUCT

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honorcode/>) specifies several behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with me.

5.4 DISABILITY SERVICES

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

5.5 RECORDING CLASS

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Students may not publish or disseminate recorded lectures in any way without the written consent of the instructor.

5.6 COURSE EVALUATIONS

Students are expected to provide feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or <https://viaufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

5.7 HEALTH AND WELLNESS/ACADEMIC RESOURCES

5.7.1 Health and Wellness

- U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.
- University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.
- GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273-4450.

5.7.2 Academic Resources

- E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352-392-6420. General study skills and tutoring.
- Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
- Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information. On-Line Students Complaints: View the Distance Learning Student Complaint Process.

6 COURSE SCHEDULE

Week	Date	Topic	Reading: Salkind	Homework Due
1	10-Jan	Research Process; Ethics	Chapter 1: Why Statistics? Chapter 2: We Love R	
2	17-Jan	The R Environment	Chapter 3: Using R Studio	
3	24-Jan	Descriptive Statistics	Chapter 4: Central Tendency Chapter 5: Dispersion	Problem Set 1: Using R
4	31-Jan	Visualization	Chapter 6: Graphs	Problem Set 2: Descriptive Statistics
5	7-Feb	Correlation	Chapter 7: Correlation	Problem Set 3: Visualization; Transforming Variables in R
6	14-Feb	Reliability/Validity; Comparisons	Chapter 8: Reliability/Validity	Problem Set 4: Correlations; Comparisons
7	21-Feb	Thinking about Inference I	Chapter 9: Hypotheses Chapter 10: Probability	Problem Set 5: R Markdown; Controlled Comparisons; Review
8	28-Feb	Thinking about Inference II	Chapter 11: Significance	
9	6-Mar	Midterm		
10	13-Mar	Spring Break		
11	20-Mar	Tests about Sample Means	Chapter 12: One Sample Z test Chapter 13: Difference of Means Chapter 14: Dependent Samples t-test	
12	27-Mar	Association: Qualitative Variables	Chapter 19: Chi Square	Problem Set 6: Z & t tests
13	3-Apr	ANOVA	Chapter 15: ANOVA Chapter 16 Factorial ANOVA	Problem Set 7: Chi Square
14	10-Apr	Regression I	Chapter 17: Correlation Chapter 18 Linear Regression + pp 379-380	Problem Set 8: ANOVA
15	17-Apr	Regression II	continued	Problem Set 9: Simple Regression
16	24-Apr	Regression III & Review	pp. 382-383	Problem Set 10: Multivariate Regression
17	30-Apr	Final Project Due		(midnight)