USC Price
Sol Price School of Public Policy

PPD 570: Applied Statistics for Planning, Policy, and Management (4 units)
Fall 2023 Mondays 6:00pm – 9:20pm
Location: VPD 105
Section 51352D

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Access to Course Materials: Blackboard (http://blackboard.usc.edu)

COURSE OVERVIEW

This is a first course in statistics for new graduate students with no substantive prior exposure to the field, or for students who want to review the fundamentals. The course is designed and delivered especially for USC Price School IPPAM students. We will cover the fundamentals of probability and statistics, and then treat more ambitious topics.

Our weekly meetings comprise lectures, in-class activities, and computer labs.The lecture meetings will summarize and organize the ideas put forth in the readings, and will necessarily emphasize basic theory and procedures. There will be numerous applied examples. Students will learn the use of statistical reasoning to answer questions related to public policy and management. Students will review and understand selected statistical techniques for analyzing data and for addressing public policy and management questions of interest using applied data analysis. Computer labs will equip students with the ability to use statistical programs to process and analyze data and interpret results based on the theories they have learned from lectures.

We have only a very limited amount of time to cover this quantity of material, and routine attendance is strongly encouraged. As a matter of courtesy to all parties concerned, please arrive on time, and discuss any premature departures with me prior to the event. If you come late, please be careful not to slam the door as you enter. If you do skip a class, the cost of any mitigation is yours, not mine.

I will communicate with you at your USC NetID, which is also your USC email address. You are accountable for the information content of the messages I send to you. I will also post key messages as announcements on the course blackboard website, which you also access with your USCNetID. My email address is above.

LEARNING OBJECTIVES

This class is designed to provide you with:

- a basic understanding of probabilistic and statistical concepts, with an emphasis on probability;
- an ability to reason in probabilistic terms;
- a set of accepted techniques that can be used to analyze, understand, and (hopefully) address many public policy and management problems and related research questions; and the means to acquire new skills in this dimension as needed;
- an understanding of how to ask statistical questions, and how to treat the information needed to answer these questions or offered in response to these questions;
- a basic familiarity with statistical computing standards; and
- an understanding of why statistical analysis is a key element of your applied social science graduate education, regardless of whether your objectives are further scholarship or further professional practice.

COMPUTING AND THE COMPUTER LAB

Modern statistical procedures were revolutionized by the availability of low-cost computers, just as computing has revolutionized just about everything else. The main objective of the lab sessions is to provide you with hands-on opportunities to apply what you have learned in the lectures of statistics with computer packages – RStudio and Microsoft Excel (MS Excel). RStudio is a powerful statistical software package that has become widely used in various fields and around the world. Although the major statistical program you will learn is RStudio, you will also learn how to use MS Excel (a widely-used spreadsheet software program). You will also learn how to interpret the results from program outputs.

RStudio

RStudio is an integrated development environment (IDE) that makes R more user-friendly. You can download RStudio at no cost from https://posit.co/downloads/. Nonetheless, to install RStudio, you must first install R. You can download R for free at https://www.r-project.org/.

The demonstrations in the lab will be based on the Windows operating system. Those who use RStudio on Mac may encounter issues that would not happen in the Windows environment. There are at least two ways to solve Mac users' problems. First, you may search for solutions online. Second, you may use the free version of Posit Cloud (formerly RStudio Cloud) which can be accessed at https://posit.cloud/plans.

REQUIRED READINGS AND SUPPLEMENTARY MATERIALS

Required and optional readings for both lectures and labs are noted as such.

Lectures

- Required: Kenneth J. Meier, Jeffrey L. Brudney, John Bohte (2015). *Applied Statistics for Public and Nonprofit Administration* (Ninth Edition). (See book cover image at https://www.amazon.com/Applied-Statistics-Public-Nonprofit-Administration/dp/1285737237)
- You may also be asked to read supplementary material as noted in the syllabus that will be made available on Blackboard. Assigned readings are important and will contribute significantly to your understanding of the lecture material. The first-best strategy is to skim the assigned material before class, attend lectures, listen carefully, and then read the text assignments with discrimination.

Labs

- There are no required texts for the lab sessions. You will use lab notes provided by me. All lab notes and readings can be downloaded via the course website: https://blackboard.usc.edu/.

COURSE ASSESSMENT & EVALUATION

Objective measures include lecture assignments (25%), lab assignments aassociated with RStudio and Excel (20%), a midterm examination (25%, in class), a final examination (25%, take home to be worked alone), and class participation (5%, so make the most of it and speak up with questions and other contributions to class discussion). The grading scale is shown as follows.

Course Component	Weight
Lecture Assignments	25%
Lab Assignments	20%
Midterm Exam	25%
Final Examination	25%
Class Participation	5%
Total	100%

Grading Scale			
94-100	A	73-76	C
90-93	A-	70-72	C-
87-89	B+	67-69	D+
83-86	B	63-66	D
80-82	B-	60-62	D-
77-79	C+	< 60	F

You have to complete and submit each assignment individually. Despite this, you can find classmates to work together in solving problems. Nonetheless, you have to write the answers in your own words. Copying other classmates' answers is a violation of University Conduct Code. See the information below on academic integrity.

All assignments will be distributed via Blackboard and are due on the schedule indicated. All aassignments should be submitted electronically via Blackboard. Please do not submit assignments as multiple documents or files. Integrate your work for each assignment into a single Word document (not a PDF file). Keep an electronic copy of your submissions for your records, in any event. Class members should respect this schedule. Late work will normally be declined.

The midterm and final examinations must be completed alone.

The university permits grades of "incomplete (IN)" to be given only if the terms the University defines for issuing a grade of "incomplete" are met. See both https://catalogue.usc.edu/content.php?catoid=11&navoid=3437 and https://priceschool.usc.edu/students/academics/incompletes/, for the conditions under which students might legitimately request a grade of "incomplete," and under which an instructor might legitimately accommodate such a request.

COURSE SCHEDULE

The table below provides the weekly topics/activities, readings, and assignments due date (due by the beginning of class unless otherwise specified).

Week 1 (Aug. 21) – Course Intro, Basic Concepts, Measurement & Lab 1: R Intro I	
Meier *et al.* Ch 1-2	
Week 2 (Aug. 28) – Research Design, Frequency Distribution & Lab 2: R Intro II	
Meier *et al.* Ch 3-4	
Week 3 (Sept. 4) – Labor Day	
	Problem Set 1 Due
Week 4 (Sept. 11) – Measures of Central Tendency, Measures of Dispersion & Lab 3: Data Preparation	
Meier *et al.* Ch 5-6	
Week 5 (Sept. 18) – The Normal Probability Distribution, The Binomial Probability Distribution & Lab 4: Data Exploration	
Meier *et al.* Ch 7-8	
Week 6 (Sept. 25) – Some Special Probability Distributions, Introduction to Inference & Lab 5: Data Wrangling	
Meier *et al.* Ch 9-10	
Week 7 (Oct. 2) – & Midtern Review	
	Problem Set 2 Due
Week 8 (Oct. 9) – Midterm Examination	
Week 9 (Oct. 16) – Hypothesis Testing with One Sample & Lab 6: Data Visualization	
Meier *et al.* Ch 11	
Week 10 (Oct. 23) – Hypothesis Testing with Two Samples & Lab 7: Descriptive Statistics	
Meier *et al.* Ch 13	
Week 11 (Oct. 30) – Construction, Analysis, and Interpretation of Contingency Tables & Lab 8: MS Excel I	
Meier *et al.* Ch 14-15	Problem Set 3 Due
Week 12 (Nov. 6) – Correlation, Simple Regression Analysis & Lab 10 – Correlation & Regression Analysis I (Simple Regression)	
Meier *et al.* Ch 17-18	
Week 13 (Nov. 13) – Multiple Regression Analysis & Lab 11 – Regression Analysis II (Multiple Regression)	Problem Set 4 Due
Meier *et al.* Ch 20-21	
Week 14 (Nov. 20) – Regression Analysis: ANOVA Table & Issues & Lab 12: Regression Issues	
Meier *et al.* Ch 20-21	
Week 15 (Nov. 27) – Final Review	
	Problem Set 5 Due
Week 16 (Dec. 11) – Final Exam	

STATEMENT ON ACADEMIC CONDUCT AND SUPPORT SYSTEMS

Academic Integrity

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, compromises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

988 Suicide and Crisis Lifeline - 988 for both calls and text messages – 24/7 on call
The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL) – 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 740-0411
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call
Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-2850 or otfp@med.usc.edu
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.