

**Sol Price School of Public Policy  
University of Southern California**

**PPD 504: Essential Statistics for Public Management**

Summer 2020  
Tu 6:00pm-8:30pm

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**Course Description and Objectives**

This class gives students the statistical foundations required to work intelligently with numbers and data in managerial situations and other circumstances relevant to public policy. The course also prepares students for future, more advanced coursework in quantitative analysis and policy/program evaluation. Students will learn about various techniques for summarizing and analyzing data and for addressing public policy and management questions using statistical methods.

Students in this course will learn:

1. To recognize the manner in which data are collected and the biases that may arise from different collection techniques;
2. To organize and arrange data in graphical forms that clearly convey the essence of the data;
3. To apply numerical techniques to summarize data, including measures of central tendency, dispersion, and correlation;
4. To analyze sample data to make inferences about broader populations; and,
5. To be able to use spreadsheet programs and other statistical tools.

As a reminder, a grade of “B” or higher is required for degrees that use PPD 504 as a prerequisite waiver course (e.g., the MPP, MPPDS, MHA, MNLM degrees).

**Prerequisites**

No previous background in statistics is assumed or necessary for successful completion of the course.

**Technology Requirements**

A computer with Microsoft Excel will be required for some classes. Problem sets will also require Excel. Microsoft Office (including Excel) is available for all USC students at <https://itservices.usc.edu/officestudents/>.

Assignments will be submitted electronically via Blackboard. Problems requiring calculations can be handwritten and then photographed/scanned using the phone on your camera or your favorite software. (I like the free Adobe Scan app that is available in the Apple and Google stores.) Your problem set submissions must be in a single file; it is your responsibility to merge typed and handwritten responses into a single file.

### **Class and Office Hour Meetings in Zoom**

Classes and Phillips office hours are held via Zoom at <https://uscprice.zoom.us/j/97747963972> and the password is **confidence**. For security purposes, you will be placed in a waiting room if you do not sign on with USC credentials, in which case will have to wait for me to release you from waiting.

- **Attendance and Recordings:** There is no class attendance requirement for the course but I encourage you to attend our live sessions so that you can ask questions, comment, and interact in other ways. That being said, I understand that you may not always be able to attend; therefore, I will record all of our sessions and post a link on Blackboard.
- **Video:** When you enter the virtual classroom, please **turn on your video** so that I can see you. Online delivery and electronic interaction can feel impersonal; I hope that seeing one another helps decrease that feeling. Feel free to turn off your camera if you need privacy, but please turn it back on when possible. You can toggle your video on and off by clicking the camera icon near the bottom left corner of the window. (Other video-related options are accessed by clicking on the adjacent ^ symbol.)
- **Audio:** When you enter the virtual classroom, you will automatically be muted. Please **leave yourself on mute** until you have a question or comment, but do not forget to re-mute once you finish speaking. To unmute and mute yourself, click on the microphone icon in the bottom left corner of the window. (Other audio-related options are accessed by clicking on the adjacent ^ symbol.) You can also unmute by holding down the space bar while you speak; once you release the space bar you will return to mute.
- **Speaking in Class:** If you would like to ask a question or make a comment, you can:
  - 1) Type your question in the group chat. You can access this by clicking on the “Chat” icon at the bottom of the window. I will read your question aloud and respond when I reach a good breaking point. This option may only be good for relatively simple, succinct questions.
  - 2) Use the “raise hand” function. You will find this by clicking on the “Participants” icon at the bottom of the window. I will call on you when I reach a good breaking

point, and then you can unmute and ask your question aloud. You can also “lower your hand” if I answer your question before calling on you.

3) Type “raise hand” (or something akin to that) in the group chat. I will then call on you when I reach a good breaking point.

- **Additional Zoom resources:**

- How to “raise your hand” in Zoom: <https://support.zoom.us/hc/en-us/articles/205566129-Raise-Hand-In-Webinar>
- Attendee controls in a meeting (including mute and unmute): <https://support.zoom.us/hc/en-us/articles/200941109-Attendee-Controls-in-a-Meeting>
- My video/camera isn’t working: <https://support.zoom.us/hc/en-us/articles/202952568-My-Video-Camera-Isn-t-Working>
- Testing computer or device audio: <https://support.zoom.us/hc/en-us/articles/201362283-Testing-computer-or-device-audio>
- Audio echo in a meeting: <https://support.zoom.us/hc/en-us/articles/202050538-Audio-Echo-In-A-Meeting>

## **Readings**

The course has one required textbook: *Applied Statistics for Public and Nonprofit Administration (Ninth Edition)* by Kenneth J. Meier, Jeffrey L. Brudney, and John Bohte.

## **Grading and Assignments**

Problem Sets	33 %
Midterm Exam	33 %
<u>Final Exam</u>	<u>33 %</u>
<b>Total</b>	<b>100 %</b>

Problem sets and other assignment details will be posted on the course’s [Blackboard site](#).

Students are expected to complete all assignments on time. Problem sets are due at the beginning of class via Blackboard. Do not wait to upload at the last minute; if you encounter technical difficulties and submit late, that will be viewed as poor planning on your part, not a basis for an extension. Late assignments are accepted with the following penalty structure: 0 to 24 hours late, 10% penalty; 24 to 48 hours late, 20% penalty; and, 48 to 72 hours late, 30% penalty. After 72 hours the late penalty doubles to 60% but is capped there through the end of the semester; therefore, you can still receive up to 40% credit on any late assignment up through the last class.

## **Attendance Policy**

There is no class attendance requirement for the course, but you must submit exams and problem sets on time whether or not you attend class.

### **Academic Accommodations for Disability**

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in GFS 120 and is open 8:30 a.m. – 4:30 p.m., Monday through Friday. The phone number for DSP is (213)740-0776.

### **Student Conduct**

Students are expected to adhere to the University Student Conduct Code as outlined by *SCampus*. Please refer to *SCampus* should you have any questions regarding what constitutes plagiarism or improper conduct. (The syllabus appendix summarizes these rules.)

## Course Schedule

Required readings (in **bold**) are required to be read before the listed class. Assignments (in *italicized bold*) are due at the beginning of the listed class.

### *I. Introduction and Descriptive Statistics*

June 2      **Statistical Reasoning, Data Collection; Displays of Data. Meier, Brudney, and Bohte Chapters 1, 2, 3, and 4.** We will discuss the importance of statistical literacy to public administration and policy. Before conducting statistical analysis one must acquire data, so we will discuss different ways of doing so and the biases that may occur from different data collection methods. Finally, we will review some of the most common ways of organizing and displaying data, as well as ways in which data can be misrepresented.

June 9      **Measures of Central Tendency and Dispersion. Meier, Brudney, and Bohte Chapters 5 and 6.** We will examine the meaning and interpretation of measures of central tendency (i.e., different concepts of the “typical” value of a variable) including the mode, median, and mean. We will also discuss criteria for selecting the appropriate measure of central tendency under various conditions. We will then turn to measures of variation/dispersion, including variance and standard deviation.

### *II. Inferential Statistics*

June 16      **Probability and Sampling Distributions. Meier, Brudney, and Bohte Chapters 7, 8, and 10.** An important concept in the study of statistics is probability. We will initially focus on normal and binomial probability distributions and then turn our attention to sampling distributions. When samples that are both large and random are involved, sampling distributions are assumed to be normally distributed or distributed. In other situations, the mean is distributed according to Student’s t-distribution. Topics to be covered include the Central Limit Theorem and estimating standard errors. ***Problem Set 1 due.***

June 23      **Confidence Intervals and Hypothesis Tests. Meier, Brudney, and Bohte Chapter 11.** With last week’s information on sampling distributions we are ready to dive into inferential statistics. We will first discuss the logic and construction of confidence intervals, emphasizing the trade-off between confidence and precision. We will then turn to the process of testing hypotheses. Key concepts include the null and alternate hypotheses, critical values, and Type I and Type II errors. We will also discuss the difference between one-tailed and two-tailed significance tests. ***Problem Set 2 due.***

June 30      **Review.** We will conclude our discussion of confidence intervals and hypotheses tests. We will also discuss next week's midterm exam. *Problem Set 3 due.*

July 7      *Midterm Exam*

July 14      **Estimating Population Proportions and Differences Between Means. Meier, Brudney, and Bohte Chapters 12, 13.** Prior to the midterm we focused on statistical inference regarding population means. This week we turn to similar processes for estimating population proportions. We then turn to testing whether the difference between the proportions or means from two subsamples is statistically significant.

### *III. Relationship between Variables*

July 21      **Contingency Tables and Correlation. Meier, Brudney, and Bohte Chapters 14 and 17.** We have previously focused on statistics and inference regarding a single variable. This week we turn to statistics and inference regarding the relationship between two or more variables. Our first method of examining the relationship between categorical variables is contingency table analysis. For examining the relationship between quantitative variables, we use scatter plots and measures such as covariance and correlation. *Problem Set 4 due.*

July 28      **Simple Regression. Meier, Brudney, and Bohte Chapter 18.** This week we build on our analysis of the relationship two quantitative variables with simple least squares regression. We will focus on interpretation and inference of regression results. *Problem Set 5 due.*

August 4      **Multiple Regression. Meier, Brudney, and Bohte Chapters 20 and 21.** Introducing two or more "right-side" variables changes the meaning of regression coefficients in an important way. We will also discuss the final exam. *Problem Set 6 due.*

August 11      *Final Exam.*

## Statement on Academic Conduct and Support Systems

### Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” [policy.usc.edu/scampus-part-b](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, [policy.usc.edu/scientific-misconduct](http://policy.usc.edu/scientific-misconduct).

### Support Systems:

*Student Health Counseling Services - (213) 740-7711 – 24/7 on call*  
[engemannshc.usc.edu/counseling](http://engemannshc.usc.edu/counseling)

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

*National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call*  
[suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

*Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call*  
[engemannshc.usc.edu/rsvp](http://engemannshc.usc.edu/rsvp)

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

*Office of Equity and Diversity (OED) | Title IX - (213) 740-5086*  
[equity.usc.edu](http://equity.usc.edu), [titleix.usc.edu](http://titleix.usc.edu)

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

*Bias Assessment Response and Support - (213) 740-2421*  
[studentaffairs.usc.edu/bias-assessment-response-support](http://studentaffairs.usc.edu/bias-assessment-response-support)

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

*The Office of Disability Services and Programs - (213) 740-0776*

[dsp.usc.edu](http://dsp.usc.edu)

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

*USC Support and Advocacy - (213) 821-4710*

[studentaffairs.usc.edu/ssa](http://studentaffairs.usc.edu/ssa)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

*Diversity at USC - (213) 740-2101*

[diversity.usc.edu](http://diversity.usc.edu)

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*

[dps.usc.edu](http://dps.usc.edu), [emergency.usc.edu](http://emergency.usc.edu)

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) 442-120 – 24/7 on call*

[dps.usc.edu](http://dps.usc.edu)

Non-emergency assistance or information.

## APPENDIX

### ACADEMIC RESPONSIBILITY

Students, faculty, and administrative officials at the University of Southern California, as members of the academic community fulfill a purpose and a responsibility.

The University must, therefore, provide an optimal learning environment, and all members of the University community have a responsibility to provide and maintain an atmosphere of free inquiry and expression. The relationship of the individual to this community involves these principles: Each member has an obligation to respect:

1. THE FUNDAMENTAL HUMAN RIGHTS OF OTHERS
2. THE RIGHTS OF OTHERS BASED UPON THE NATURE OF THE EDUCATIONAL PROCESS
3. THE RIGHTS OF THE INSTITUTION

### ACADEMIC DISHONESTY

The following statements and examples explain specific acts of academic dishonesty.

1. Examination Behavior: Any use of external assistance during an exam is considered academically dishonest unless expressly permitted.
  - a. Communicating in any way with another student during the examination.
  - b. Copying material from another student's exam.
  - c. Using unauthorized notes, calculators or other devices.
2. Fabrication: Any intentional falsification or invention of data or citation in an academic exercise will be considered a violation of academic integrity.
  - a. Inventing or altering data for a laboratory experiment or field project.
  - b. Resubmitting returned and corrected academic work under the pretense of grader evaluation error, when, in fact, the work has been altered from its original state.
3. Plagiarism: Plagiarism is the theft and subsequent passing off of another's ideas or words as one's own. If the words or ideas of another are used, acknowledgement of the original source must be made through recognized referencing practice.
  - a. Direct Quotation: Any use of a direct quotation should be acknowledged by footnote citation and by either quotation marks or appropriate indentation

and spacing.

- b. Paraphrase: If another's ideas are borrowed in whole or in part and are merely recast in the student's own words, proper acknowledgement must, nonetheless, be made. A footnote or proper internal citation must follow the paraphrase material.

4. Other Types of Academic Dishonesty:

- a. Submitting a paper written by another;
- b. Using a paper or essay in more than one class without the instructor's express permission;
- c. Obtaining an advance exam copy without the knowledge or consent of the instructor;
- d. Changing academic records outside of normal procedures;
- d. Using another person to complete homework assignment or take-home exam without the knowledge and consent of the instructor.

The above information is taken directly from *SCampus* and the Academic Affairs Unit of the Student Senate in conjunction with the Academic Standards Committee.

**ACADEMIC DISHONESTY  
SANCTION GUIDELINES**

**VIOLATION**

**RECOMMENDED SANCTION**  
(assuming first offense)

Copying answers from other students on exam.

F for course.

One person allowing another to cheat from his/her exam or assignment.

F for course for both persons.

Possessing or using extra material during exam (crib sheets, notes, books, etc.)

F for course.

Continuing to write after exam has ended.

F or zero on exam.

Taking exam from room and later claiming that the instructor lost it.

F for course and recommendation for further disciplinary action (possible suspension).

Changing answers after exam has been returned.

F for course and recommendation for disciplinary action (possible

	suspension).
Fraudulent possession of exam prior administration.	F for course and recommendation for suspension.
Obtaining a copy of an exam or answer key prior to administration.	Suspension or expulsion from the university; F for course.
Having someone else take an exam for oneself.	Suspension or expulsion from the University for both students; F for course.
Plagiarism.	F for the course.
Submission of purchased term papers or papers done by others.	F for the course and recommendation for further disciplinary action. (possible suspension)
Submission of the same term papers to more than one instructor where no previous approval has been given.	F for both courses.
Unauthorized collaboration on an assignment.	F for the course for both students.
Falsification of information in admission application (including supporting documentation).	Revocation of university admission without opportunity to apply.
Documentary falsification (e.g., petitions and supporting materials medical documentation).	Suspension or expulsion from the university; F for course when related to a specific course.
Plagiarism in a graduate thesis or dissertation.	Expulsion from the university when discovered prior to graduation; revocation of degree when discovered subsequent to graduation.

Please refer to *Trojan Integrity: A Faculty Desk Reference*, for more information on assessing sanctions. You may also consult with members of the Office of Student Judicial Affairs and Community Standards at any point in the process, (213) 740-6666