

## PPD 303 Statistics for Policy, Planning, and Development

Spring 2021 Mon, Wed 10:00am – 11:50am

Course Location: online

Section 51108

**Instructor:** Emma Aguila, Ph.D.

**Biography:** <http://priceschool.usc.edu/emma-aguila/>

**Office:** by appointment or during office hours. Zoom [link](#):

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**TA Office Hours:** Tuesdays 10am-12pm

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### Course Description

This course is an introduction to statistical methods. The course will provide you with the analytical and quantitative skills required to conduct applied statistical analysis. You will learn about the practical uses of statistics in social science, public policy, management, and everyday life. You will be able to evaluate statistics presented in scholarly journals and prepare yourself for future quantitative research projects and advanced statistical courses. The course focuses on understanding the conditions under which various statistical techniques may be properly used as well as understanding and interpreting the results. Little emphasis will be placed on learning formulas and equations per se. Since virtually all of the computation of statistics is done with computers, we will be devoting time for you to become familiar with statistical software. On examinations, some manual calculations will be required. You will need a hand calculator with a square-root function. One set of computer-based exercises will be required using Microsoft Excel. Homework will be assigned as needed to supplement each week's lecture. At the end of this course, you will be familiar with several types of statistics and be able to interpret statistical findings. We will end the course by learning Ordinary Least Squares (OLS) models.

### Learning Objectives

The specific objectives of this first course in statistical analysis are:

- To develop an understanding of the basic statistical techniques
- To learn how to choose a statistic appropriate for a particular analytical task
- To be able to translate the results of statistical analyses into a conclusion regarding the questions posed
- To introduce students to statistical software
- To show students the importance of statistics for their future work/school experience(s)
- To show how statistical techniques are used in scholarly journals

- Conduct basic data analysis using MS Excel

### Course Notes

The course utilizes Blackboard (<http://blackboard.usc.edu>) for posting lecture slides, assignments, syllabus, and readings.

### Classes

Students will use the Zoom platform to attend or watch recorded lectures. Access the zoom links for our weekly sessions using our Blackboard course on the “Weekly Zoom Links” tab.

### Technological Proficiency and Hardware/Software Required

In-class activities will require a student to use a computer for data analysis. Excel software is required for in-class data analysis, excel labs, and some problem sets. It is required to bring a laptop with Excel installed to Excel Labs to be able to do Excel Lab Exercises.

If you do not have Excel, you can download it for free with your USC student account at the following link: <https://itservices.usc.edu/officestudents/>

### Required Readings and Supplementary Materials

Required and optional readings are noted as such. There is one required textbook.

#### REQUIRED

- Moore, David S., Notz, William I., Fligner, Michael A. 2015. *Basic Practice of Statistics*. Seventh Edition. New York: W.H. Freeman and Co. (5<sup>th</sup> Edition or 6<sup>th</sup> Edition is acceptable)

#### OPTIONAL

- Calberg, Conrad. 2015. *Introduction to Statistical Analysis: Microsoft Excel 2013*. 1st Edition. Pearson Education.

There are also many free online resources for learning how to use Excel that you may find to be helpful. For example, Microsoft Office website <https://support.office.com/en-us/article/Excel-2013-videos-and-tutorials-aaae974d-3f47-41d9-895e-97a71c2e8a4a>

### Grading Breakdown

Category	% of Grade
Problem Sets 1-5 (5% each)	25
Excel Lab Exercises 1-3 (average lab grades)	20
Quizzes 1-8 (mean of 6 highest)	15
Midterm Exam	20
Final Exam	20
TOTAL	100

## Description and Assessment of Assignments

### **PROBLEM SETS (25%)**

Students will be asked to complete 5 problem sets available on Blackboard (<http://blackboard.usc.edu>). You are encouraged to work on problem sets in groups of 2 or 3, but each of you is required to complete your own problem set and describe results in your own words. **Copying answers from someone else's problem set is plagiarism and will be treated as such. Please include the names of the students you worked with for each problem set on top the first page of your submission.**

#### Problem Set Submission Policy:

Due dates for problem sets are given in the syllabus. Problem sets must be turned in before the class begins on the due date and will not be accepted late. Short of a doctor's excuse, there is no reason to be late with the assigned work. All assignments will be submitted on Blackboard.

### **EXCEL LAB EXERCISES (20%)**

Students will be asked to complete 3 Excel exercises. You are encouraged to work on the excel exercises in groups, but each of you is required to complete your own excel exercise. **Copying answers from someone else's excel exercise is plagiarism and will be treated as such. Please include the names of the students you worked with for each problem set on top in the first page of your submission.**

#### Excel Exercises Submission Policy:

Excel Exercises are submitted by the end of the week of each Excel lab and will not be accepted late. Students are required to use a Laptop with Excel during Excel Labs. Short of a doctor's excuse, there is no reason not to complete the excel lab exercise during class. All Excel exercises will be submitted via Blackboard.

### **QUIZZES (15%)**

Students will be asked to complete 8 true/false and multiple-choice quizzes on Blackboard. Students must study class material to complete the quizzes, which test your understanding of course material and prepare you for the problem sets and exams. Students will be able to log in to Blackboard to complete each quiz within at least 48 hours of its release. But once you open a quiz, you will have a maximum of 16 minutes to complete the quiz in one attempt. Your quiz grade will be based on the average of the 6 highest quizzes. **Quizzes are to be completed in 16 minutes in one attempt. Students requiring DSP accommodation are advised to submit their letters asap.**

### **EXAMS (40%)**

Exams are cumulative but new material has more weight.

### **PARTICIPATION (3%)**

Attendance and participation in class is mandatory. This course uses an applied approach that integrates lecture material with in-class exercises, labs, and other hands-on analysis and class discussion. Because attending all class meetings and completing all in-class work is the minimum expected of all students, class participation is not included directly in the grading breakdown above. Up to 3% extra credit will be rewarded for class participation based on attendance, class contribution, review of online materials and class videos, and taking quizzes on schedule.

## Course Schedule: A Weekly Breakdown

	Topics/Daily Activities	Readings from textbook	Deliverable/ Due Dates
<b>Week 1-Mon</b> 01/18/21	No class		
<b>Week 1-Wed</b> 01/20/21	Course Introduction and Descriptive Statistics	Moore Chapter 0, 1, 2	
<b>Week 2- Mon</b> 01/25/21	Descriptive Statistics Continued	Moore Chapters 1,2	Quiz 1 Ch. 1,2 Due WEDNESDAY by midnight
<b>Week 2- Wed</b> 01/27/21	Excel Lab: Descriptive Statistics and Plots		Excel Lab Exercise 1 Due FRIDAY by 10am
<b>Week 3- Mon</b> 02/1/21	Distributions and Density Curves	Moore Chapter 3	
<b>Week 3- Wed</b> 02/3/21	Distributions and Density Curves	Moore Chapter 3	Problem Set 1 Due TODAY Quiz 2 Ch. 3 Due FRIDAY by midnight
<b>Week 4- Mon</b> 02/08/21	Correlation, Two-Way Tables	Moore Chapter 4, 6	
<b>Week 4- Wed</b> 02/10/21	Regression Intro	Moore Chapter 5	Quiz 3 Ch. 4, 6, 5 Due FRIDAY by midnight
<b>Week 5- Mon</b> 02/15/21	No class		
<b>Week 5- Wed</b> 02/17/21	Excel Lab: Correlation, Regression, and Two-Way Tables		Excel Lab Exercise 2 Due FRIDAY by 10am
<b>Week 6- Mon</b> 02/22/21	Sampling	Moore Chapters 8, 9	
<b>Week 6- Wed</b> 02/24/21	Observation Data and Experiments	Moore Chapters 9	Problem Set 2 Due TODAY
<b>Week 7- Mon</b> 03/01/21	Data Ethics	Moore Chapters 10	
<b>Week 7- Wed</b> 03/03/21	Excel Lab Review Class		Problem Set 3 Due TODAY
<b>Week 8- Mon</b> 03/08/21	Review Class		
<b>Week 8- Wed</b> 03/10/21	<b>Midterm Examination</b>		Exam Due TODAY by 5pm
<b>Week 9- Mon</b> 03/15/21	Probability Theory	Moore Chapters 12, 13	
<b>Week 9- Wed</b> 03/17/21	Law of Large Numbers and Central Limit Theorem	Moore Chapter 15, 16	Quiz 4 Ch. 12, 13, 15 Due FRIDAY by midnight
<b>Week 10- Mon</b> 03/22/21	Confidence Intervals	Moore Chapter 16	
<b>Week 10- Wed</b> 03/24/21	Hypothesis Testing and Statistical Significance	Moore Chapters 17, 18	Quiz 5 Ch. 16, 17 Due FRIDAY by midnight

<b>Week 11- Mon</b> 03/29/21	t Distribution	Moore Chapters 18, 20	
<b>Week 11- Wed</b> 03/31/21	t Distribution	Moore Chapters 18, 20	Problem Set 4 Due TODAY Quiz 6 Ch. 18 Due FRIDAY by 10am
<b>Week 12- Mon</b> 04/05/21	Comparing Two Means	Moore Chapters 21	
<b>Week 12- Wed</b> 04/07/21	No class		Quiz 7 Ch. 20, 21 Due FRIDAY by midnight
<b>Week 13- Mon</b> 04/12/21	Regression	Moore Chapters 5, 26	
<b>Week 13- Wed</b> 04/14/21	Regression Continued	Moore Chapter 5, 26	Quiz 8 Ch. 5, 26 Due FRIDAY by midnight
<b>Week 14- Mon</b> 04/19/21	Excel Lab: Regression		Excel Lab Exercise 3 Due FRIDAY by 10am
<b>Week 14- Wed</b> 04/21/21	Statistics and Practice		
<b>Week 15- Mon</b> 04/26/21	Excel Lab: Review Class		Problem Set 5 Due TODAY
<b>Week 15- Wed</b> 04/28/21	Review Class		
<b>Week 16- Mon</b> 05/03/21	No class		
<b>Week 16- Wed</b> 05/05/21	No class		
<b>Week 17- Mon</b> 05/10/21	<b>FINAL EXAMINATION</b>		

## **Additional Policies**

### **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/ssu](http://studentaffairs.usc.edu/ssu)

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.

### **Academic Accommodations**

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 the instructor (or to a TA) as early in the semester as possible. DSP is located in STU 301 and is open 8.30 AM to 5.00 pm Monday through Friday. Website and contact information for DSP:

[http://sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html) (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX), [ability@usc.edu](mailto:ability@usc.edu)