

# Psychology 274L: Statistics

Summer 2014

Lecture Location: Seeley G. Mudd Building, Room 226  
Days and Time: Tuesday & Thursday; 9:30 a.m. to 11:50 a.m.

Lab Location: Salvatori Computer Science Center (SAL), Room 109  
Days and Time: Tuesday & Thursday; 12:30 p.m. to 2:20 p.m.

Online portion at <http://blackboard.usc.edu>

## **Instructor Information**

Dr. Clayton L. Stephenson  
Lecturer  
[clstephe@usc.edu](mailto:clstephe@usc.edu)

Office Location: SGM, Room 526  
Office Hours: By Appointment  
Office Phone: (213) 740-9019

## **Syllabus**

### **Course Description**

The word “statistics” is often associated with feelings of fear and dread, visions of incomprehensible equations, and thoughts of boredom. This class is designed to alleviate your fears and dread, to provide clarity of equations, and to provide you with the logic and practicality of statistics. Statistics is a key element that makes psychology a discipline worthy of being a true science; thus, statistics is one of the most important courses you will take in psychology or any scientific discipline. Without rigorous, systematic organization, analysis, and interpretation of data, much of the theoretical and practical knowledge we have about perception, cognition, attitudes, learning, human development, stereotypes, and many other areas in psychology would not exist. Although this course is not content specific, the knowledge and content of the course can be applied to any content-specific course in psychology.

### **Teaching Objectives**

- Provide students with the *logic* of each type of statistic.
- Provide students with meaningful skills and knowledge about statistics to help them advance in psychology and science.
- Guide and mentor students in interpreting and reporting statistics at a pragmatic level for use in academic and workplace settings.

### **Student Learning Objectives**

After successfully completing this course, students will be able to . . .

- recognize various statistical procedures and terminology.
- identify which statistical procedure(s) to use for hypothesis testing.
- understand the statistics used in academic articles.
- accurately interpret and describe, in plain English, inferential statistics.
- provide well-written summaries of statistical results.
- verbally present statistical results in a practical and meaningful manner.
- use SPSS, which is a statistical analysis software, with comfort and proficiency.
- understand alternative methods to null hypothesis testing

### **Text**

Gravetter, F. J., & Wallnau, L. B. (2013). *Statistics for the behavioral sciences (9<sup>th</sup> ed.)*. Belmont, CA: Wadsworth, Cengage Learning.

**NOTE: You MUST purchase the textbook at the bookstore!** The textbook is a bundled package that is NOT available anywhere else. The ISBN-13 on your book **MUST** be as follows: 978-1-133-39571-3. The bundled package is called Aplia, which is a **required** digital component for this class. Aplia is how you will complete homework assignments. There are [Student Online Resources](#) available for Gravetter and Wallnau (2013).

### **Required Equipment**

You are required to bring a calculator with a square root function to each class and lab session. You do not have to purchase an expensive, fancy calculator. A good *example* of the type of calculator you will need is the Casio fx-260 Solar model (approximately \$10-15). You may use a graphing calculator if you already own one. You may **NOT** use your cell phone as a calculator. You will also need a USB Flash Drive, Dropbox, or a Cloud Drive to save files you will create during labs.

**NOTE: I highly suggest you use loose leaf notebook paper and NOT spiral bound paper. Based on my experience as a student and, many of my previous students who took this class, found that loose leaf paper is truly easier and, in some cases, a necessity for taking notes in this class.**

### **HELPFUL WEBSITES!**

<http://wise.cgu.edu>

<http://www.ats.ucla.edu/stat/SPSS>

<http://www.socr.ucla.edu>

<http://www.amstat.org/publications/jse/v6n3/west.html>

Assessment	Due Date or Exam Date	% of final grade
Bonus Prep 1	May 29 <sup>th</sup>	0-3 points given on Final
Bonus Prep 2	June 5 <sup>th</sup>	0-3 points given on Final
Bonus Prep 3	June 12 <sup>th</sup>	0-3 points given on Final
Bonus Prep 4	June 19 <sup>th</sup>	0-3 points given on Final
Bonus Prep 5	June 26 <sup>th</sup>	0-3 points given on Final
Final Exam	July 1 <sup>st</sup>	15 (individual)
Aplia Assignments	Due Mondays at 11:45 p.m.	25 (individual)
Applied Statistics Assignment	Due June 27 <sup>th</sup> at 11:59 p.m.	25 (individual or group)
Lab Assignments	★ <b>Tuesday Labs Due on Wednesday at 11:59 p.m.</b> ★ <b>Thursday Labs Due on Friday at 11:59 p.m.</b>	25 (individual and group)
Participation = Lecture (5%) + Lab (5%)	Continuous	10 (individual and group)

### **Bonus Preps**

Bonus preps are best understood as a quiz or mini-exam that do not have a direct impact on your grade. Bonus preps will test your knowledge and application of the material through multiple choice questions, short answer questions, and word problems. Bonus preps do *not* have a direct impact on your grade because they are “practice tests” and do *not* carry any weight on your final grade. Here is how it works. Each bonus prep is worth 100 points. Whatever your score is on a bonus prep, I multiply your score by .03. For example, if you get a 65, then you earned 1.95 points. Those points will be added to your score on the final exam. So, if you score 1.95 on all 5 bonus preps, then 9.75 points will be added to your final exam score. For example, if you get a 75 on the final exam and the 9.75 is added to the final exam, then your score that will count toward your final grade will be an 85.75. If you miss a bonus prep, *it does not hurt your grade directly!*

### **Final Examination**

A final examination will be given. The examination will test your understanding of the major concepts in the course, and will focus on both the details and "the big picture." The examination is based on a combination of lecture material, class discussions, textbook, student oral presentations, video-presentations, assignments, and handouts. The Bonus Preps are the best representation of what you can expect on the examination. The examination will consist of multiple-choice questions, word problems, and short essays. The final examination is *cumulative* and will include questions assessing your ability to *apply* the knowledge you obtained in the labs and lecture. ***NOTE: You will be asked to do some minor calculations on the final exam. These will be simplistic and will only require a calculator. If you show up 15 minutes or later on a bonus prep or examination day, then you will NOT be allowed to take the bonus prep or examination with the exception of verifiable emergencies.***

### **Aplia Assignments**

You will complete one Aplia assignment each week to help you remember, understand, and apply the material. The problems will consist of some calculations, word problems, or short answer questions. You should use the weekly assignments to study and prepare for bonus preps and the final examination. It is **your** responsibility to know when assignments are due by continually checking the Aplia website. Assignments become available two weeks before the due date and are due Mondays at 11:45 p.m.

### **Applied Statistics Assignment**

One of the primary goals in this class is to prepare you with skills for a work position or graduate school. The applied statistics assignment is designed to provide you with a realistic problem that you might come across outside of the classroom. You will have the entire six weeks to complete the applied statistics assignment during lab (potentially lecture) and on your own time.

### **Weekly Lab Assignments**

The lab assignments are designed for you to gain experience in applied aspects of inputting data into spread sheets, importing and exporting data, creating graphs and tables that adhere to the APA Publication Manual, using SPSS, reading SPSS output, interpreting the results in a meaningful manner, and writing results so that the majority of people would understand your results. Some assignments will require you to work in small groups or individually.

### **Participation Points (Class & Lab)**

Reading the assigned material and completing the assignments before class and lab are important to understanding the lecture topics and to participating in the discussions. Various *participation point questions* will be asked during class for which a response is expected, on paper, and discussions will be based on those questions. Exercises may occasionally be assigned in class in order to help you to understand the course material. These exercises may be worked on in class, or may be due at a later date. Lab participation will be graded based on the completion of a specific assignment or demonstration that will take place each lab.

### **Grading Scheme**

A = 100 - 93.5%; A- = 93.4 - 89.5%; B+ = 89.4 - 86.5%; B = 86.4 - 83.5%; B- = 83.4 - 79.5%; C+ = 79.4 - 76.5%; C = 76.4 - 73.5%; C- = 73.4 - 69.5%; D+ = 69.4 - 66.5%; D = 66.4 - 63.5%; D- = 63.4 - 59.5%; Below 59.5% = F

### **Course and University Policies**

- 1) **Missed Exams and/or Assignments:** Missed examinations and assignments cannot be made up and will result in a grade of zero. Students who experience medical emergencies that prevent them from attending class on days when class exercises, bonus preps, or the final examination is scheduled will be required to provide original documentation from their physicians within one week explaining their absence. USC athletes should meet with me by the end of the second week regarding their scheduled athletic events that may conflict with course requirements.
- 2) **Feedback:** The instructor will make every attempt to return exams and assignments in a reasonable time by returning them no later than two weeks after the due date.
- 3) **Appeal Process:** If you find that an answer in your homework assignment, bonus prep, or exam was incorrect, but you think it is correct, you can appeal the decision in writing. The written appeal must have supporting documentation (e.g., reference to a class reading). The appeal cannot be based on your opinion or personal experience, but rather based on the course materials. Appeals must be delivered to the instructor no later than one week after the grade is posted. Appeals will not be accepted via email and no late appeals will be accepted.
- 4) **Tardy Policy:** Do NOT show up late to class or lab. Period.
- 5) **Cell Phone and Electronic Device Policy:** Cell phones should be turned off during class and lab. Do NOT leave cell phones on vibrate and do **NOT** text message during class. ***Computers may NOT be open during lectures.***
- 6) **Course Participation:** You are expected to be prepared for class by completing the required readings or exercises BEFORE class, and should be prepared for discussion of the assignments (and participation point questions).
- 7) **Academic Dishonesty:** Plagiarism, lazy writing, and cheating are violations of the Student Judicial Affairs & Community Standards and may be dealt with by both the instructor and the university. Plagiarism is defined as, “the act of presenting the ideas and writings of another as one's own.” Lazy writing is defined as, “using quotes or paragraphs with the proper citation, but are used in a manner that a paper is stitched together and clearly has little or no original writing.” Cheating is defined as, “the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means.” In instances of academic dishonesty, the instructor will take appropriate action as outlined in

the Academic Integrity Review Process (SJACS 14.10).

- 8) Support for Student with Disabilities: If you are in need of an accommodation for a disability in order to participate in this class, please see the instructor and contact Disabilities Services and Program at (213) 740-0776.
- 9) University Escort Service: If you feel that you would like to be escorted to your vehicle, bus, or campus residence after 5:00 p.m., do not hesitate to call (213) 740-4911.

### **Instructor-Student Communication and Blackboard**

Blackboard (Bb) will be used to post announcements, send e-mails, and post all grades and course materials, so it is the student's responsibility to frequently visit the course on Blackboard (website: <http://blackboard.usc.edu>). Any assignments you complete will be turned in on Bb. Please see Bb for a document titled "Guidelines for Bb Assignments" to help you avoid problems turning in assignments. Bb transactions will follow the below guidelines.

- 1) Grades: All grades and points will be posted on Bb one to two weeks after the completion of the exam, assignment, or activity. Grades will not be announced in class, via e-mail, or during office hours.
- 2) Course materials: The syllabus, homework assignments, and supplemental reading material can be viewed and printed from Bb.
- 3) Announcements: Class announcements will be posted on Bb, as well as broadcasted in class.
- 4) Email: Any e-mail communications from the instructor or TA will be sent via Bb or through the USC's email service. USC requires that all e-mail communication between the instructor and students be sent via an official USC e-mail address. *Any student communication delivered from a non-USC e-mail address will be automatically discarded.* Lastly, please keep your emails professional by including a salutation, using complete sentences in the body of the text, and a complimentary closing that includes your name and the course name in which you are enrolled.

### **Special Notes**

- 1) This course is challenging and 100% attendance is expected of all students. It is clear that students who attend class regularly, keep up with the readings, complete the assignments with full effort, and who do not leave studying until the last moment typically find that they enjoy the course more and achieve at least a C or better in this course. As in any course, work of a significantly high caliber in each of the components of this course is considered to be an A (i.e., exceptional) work. It is especially important that you be on time for class, have completed your reading assignments prior to class-time, and that you are prepared.
- 2) *All assignments in this course are expected to be word-processed and graphs/tables should be computer-generated unless otherwise specified.*
- 3) **All assignments should be completed using APA-style, including the use of a title page that adheres to the APA publication manual.** Assignments for class or lab are due either at the beginning of class, lab, or the designated due date and should be submitted electronically on Bb unless otherwise specified. Word-processing and data management software are available in several computer labs on campus.
- 4) All students are expected to have access to the student computer network. It is your responsibility to ensure that your access is up-to-date during the semester.
- 5) If you should find that you are not doing as well in this course as you would like, please see me immediately. It is critical to get help as soon as you identify you are struggling. I will

help you as best I can. If you need help consistently throughout the semester, you can arrange for short-term or long-term tutoring through the LRC. The Writing Center is also available to tutor students who are having difficulty with writing. For assistance, visit their website at <http://college.usc.edu/writingcenter/> or call (213) 740-3691.

### ***Tentative Schedule of Lecture Topics and Assignments***

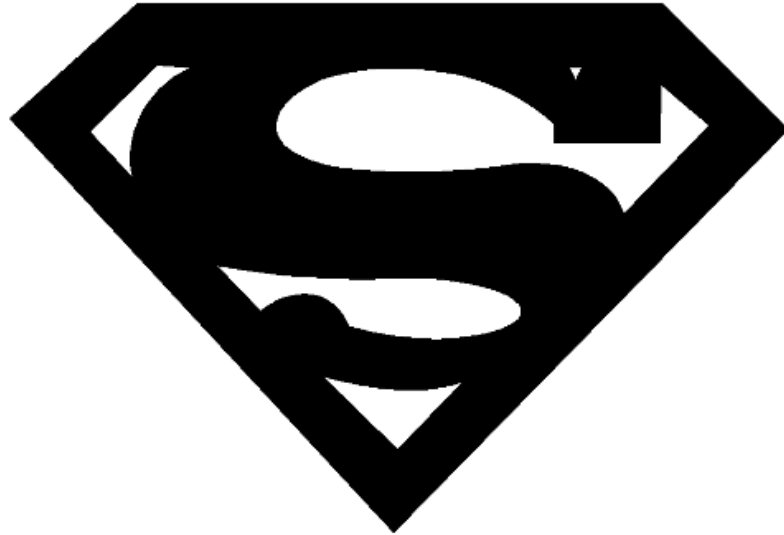
Week & Topic	Date and Readings	
Week 1	5/22/2014	
<b>Chapter 1</b> <b>Chapter 2</b> <b>Chapter 3</b>	<ul style="list-style-type: none"> <li>➤ Introductions</li> <li>➤ Overview of course</li> <li>➤ Defining statistics</li> <li>➤ Notations</li> <li>➤ Basic concepts in research methods</li> </ul>	
Week 2	5/27/2014	5/29/2014
<b>Chapter 4</b> <b>Chapter 5</b> <b>Chapter 6</b>	<ul style="list-style-type: none"> <li>➤ Variability</li> <li>➤ z-Scores</li> </ul>	<ul style="list-style-type: none"> <li>➤ z-Scores (cont.)</li> <li>➤ Probability</li> <li>➤ Boxplots</li> </ul>
Week 3	6/03/2014	6/05/2014
<b>Chapter 7</b> <b>Chapter 8</b> <b>Chapter 9</b>	<ul style="list-style-type: none"> <li>➤ Distribution of Sample Means</li> <li>➤ Hypothesis Testing</li> </ul>	<ul style="list-style-type: none"> <li>➤ Hypothesis Testing (cont.)</li> <li>➤ Intro. to <i>t</i> statistics</li> </ul>
Week 4	6/10/2014	6/12/2014
<b>Chapter 10</b> <b>Chapter 11</b> <b>Chapter 12</b>	<ul style="list-style-type: none"> <li>➤ <i>t</i> statistic for independent samples</li> <li>➤ <i>t</i> statistic for paired samples</li> </ul>	<ul style="list-style-type: none"> <li>➤ <i>t</i> statistic for paired samples (cont.)</li> <li>➤ Intro. to ANOVA</li> </ul>
Week 5	6/17/2014	6/19/2014
<b>Chapter 13</b> <b>Chapter 14</b> <b>Chapter 15</b>	<ul style="list-style-type: none"> <li>➤ Repeated-Measures ANOVA</li> <li>➤ Two-Factor ANOVA</li> </ul>	<ul style="list-style-type: none"> <li>➤ Two-Factor ANOVA (cont.)</li> <li>➤ Correlation</li> </ul>
Week 6	6/24/2014	6/26/2014
<b>Chapter 16</b> <b>Chapter 17</b> <b>Chapter 19</b>	<ul style="list-style-type: none"> <li>➤ Intro. to Regression</li> <li>➤ Chi-Square Statistic</li> </ul>	<ul style="list-style-type: none"> <li>➤ Chi-Square Statistic (cont.)</li> <li>➤ Choosing the Correct Statistic</li> </ul>
Week 7	7/01/2014	
<b>No Reading</b>	➤ <i>Final Exam!</i>	

## Tentative Schedule of Lab Topics and Assignments

Week & Topic	Date and Readings	
Week 1	5/22/2014	
<b>Appendix D</b>	<ul style="list-style-type: none"> <li>➤ Using SPSS</li> <li>➤ Entering Data</li> <li>➤ Exporting Output</li> <li>➤ Lab Report Guidelines</li> <li>➤ Tips and Tricks using Word</li> <li>➤ Combine and Clean up Data Files</li> </ul>	
Week 2	5/27/2014	5/29/2014
<b>Chapter 4</b> <b>Chapter 5</b> <b>Chapter 6</b>	<ul style="list-style-type: none"> <li>➤ Obtaining Descriptive Statistics</li> <li>➤ z-Score Analysis</li> <li>➤ Annotating SPSS Output</li> </ul>	<ul style="list-style-type: none"> <li>➤ Look at the Data! Literally!</li> <li>➤ Obtaining Boxplots, Scatterplots, Line Graphs, Bar Charts, &amp; Error Bars</li> <li>➤ What a Mess! Now What?</li> </ul>
Week 3	6/03/2014	6/05/2014
<b>Chapter 7</b> <b>Chapter 8</b> <b>Chapter 9</b>	<ul style="list-style-type: none"> <li>➤ Tutorial on Distribution of Sample Means</li> <li>➤ Conduct Literature Search</li> </ul>	<ul style="list-style-type: none"> <li>➤ Is your sample different from the population?</li> <li>➤ How different are two groups?</li> </ul>
Week 4	6/10/2014	6/12/2014
<b>Chapter 10</b> <b>Chapter 11</b> <b>Chapter 12</b>	<ul style="list-style-type: none"> <li>➤ How different are two groups? (cont.)</li> <li>➤ How different are two scores from the same person?</li> <li>➤ Work on Applied Statistics Assignment</li> </ul>	<ul style="list-style-type: none"> <li>➤ How different are three or more groups?</li> <li>➤ Work on Applied Statistics Assignment</li> </ul>
Week 5	6/17/2014	6/19/2014
<b>Chapter 13</b> <b>Chapter 14</b> <b>Chapter 15</b>	<ul style="list-style-type: none"> <li>➤ Do behaviors change over time or in different conditions?</li> <li>➤ Work on Applied Statistics Assignment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Does one IV depend on another IV?</li> <li>➤ Variables covarying and possibly predicting behavior?</li> <li>➤ Work on Applied Statistics Assignment</li> </ul>
Week 6	6/24/2014	6/26/2014
<b>Chapter 16</b> <b>Chapter 17</b> <b>Chapter 19</b>	<ul style="list-style-type: none"> <li>➤ Does X predict Y?</li> <li>➤ Work on Applied Statistics Assignment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Do the two groups differ when categorical data are collected?</li> <li>➤ Work on Applied Statistics Assignment</li> </ul>
Week 7	7/01/2014	
<b>No Reading</b>	➤ <i>NO LAB!</i>	

## **Syllabus as a Contract**

The purpose of this syllabus is to provide a contract between the professor and the student. By enrolling in this class, the student agrees that he/she has read, understands, and will adhere to the syllabus guidelines and complete the assignments given in the class. The professor reserves the right to change the schedule of topics and readings and will give notice to the students of such changes well in advance of those changes.



## **The Super Statistician**

### **What is it?**

A super statistician is someone who shows excellence in statistics beyond memorization of the material and demonstrates application of the content. If you complete successfully, then you will earn super statistician status.

### **Who can earn this status?**

Anyone in this class may work to earn this status, but I will choose only *one* people who have shown excellence in the course through assignments, participation, discussion, and has the best Applied Statistics Assignment.

### **What you do you earn?**

A super statistician will earn a coveted Superman t-shirt. Have fun with the challenge!