

Psychology 274 (52720): Statistics I

Spring 2013

Lecture Location: Seeley G. Mudd Building (SGM), Room 601
Days and Time: Monday & Wednesday; 3:30 a.m. to 4:50 a.m.

ALL Labs Location: SGM, Room 631
Tuesday Lab Time: 8:00 a.m. to 9:50 a.m.
Tuesday Lab Time: 12:00 p.m. to 1:50 p.m.
Wednesday Lab Time: 12:00 p.m. to 1:50 p.m.

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

Instructor Information

Dr. Clayton L. Stephenson
Non-Tenure Track Professor
clstephe@usc.edu

Office Location: SGM, Room 526
Office Hours: Monday, & Wednesday
1:00 p.m. – 3:00 p.m.; Friday
10:00 a.m. – 1:00 p.m.; and by appointment

TA Information

Zhiqin Chen; zhiqinch@usc.edu
Ricardo Reyes; reyesr@usc.edu

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.

Required Texts

Gravetter, F. J., & Wallnau, L. B. (2013). *Statistics for the behavioral sciences (9th 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: 978-1-285-11043-1. 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	February 4 th	0-3 points given on Midterm
Bonus Prep 2	February 25 th	0-3 points given on Midterm
Midterm Exam	March 6 th	10 (individual)
Bonus Prep 3	April 1 st	0-3 points given on Final
Bonus Prep 4	April 22 nd	0-3 points given on Final
Final Exam	May 10 th	15 (individual)
Aplia Assignments	Due 11:45 p.m. Mondays or Fridays (Check Aplia website)	25 (individual)
Applied Statistics Assignment	May 3 rd at 11:59 p.m.	15 (individual or group)
Lab Assignments	Due each week at 10:00 p.m. day before scheduled lab time	25 (individual and group)
Participation = Lecture (5%) + Lab (5%)	Continuous	10 (individual and group)

Examinations

A midterm and final examination will be given. The examinations will test your understanding of the major concepts in the course, and will focus on both the details and "the big picture."

Both examinations are 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 examinations. The examinations 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 midterm and 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 or two Aplia assignments 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 examinations. 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 or Fridays at 11:45 p.m.

Applied Statistics Assignment

One of the primary goals in this class is to prepare you with skills for graduate school or a work position. 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 majority of the semester to complete the applied statistics assignment during lab 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 examinations are 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 and TAs 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 a B (i.e., good) or 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) Teaching Assistants (TAs) are available for this course. If you should find that you are not doing as well in this course as you would like, please see your lab TA. If you are still having trouble after seeing your TA, please come see me immediately. 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 Topics and Assignments

Week & Reading		Date and Topics	
Week 1	01/14/2013	01/16/2013	NO LAB
Syllabus Chapter 1	➤ Overview of course	➤ Defining statistics ➤ Notations ➤ Basic concepts in research methods	
Week 2	01/21/2013	01/23/2013	LAB #1
Chapter 2 Chapter 3	➤ NO CLASS! ➤ Martin Luther King's Birthday	➤ Frequency distribution ➤ Logic of central tendency	➤ Using SPSS ➤ Entering data ➤ Exporting output
Week 3	01/28/2013	01/30/2013	LAB #2
Chapter 4	➤ Central tendency (cont.) ➤ Logic of variability ➤ Range ➤ Interquartile range	➤ Variance ➤ Standard deviation (<i>SD</i>) ➤ Degrees of freedom (<i>df</i>)	➤ Lab report guidelines ➤ Tips and tricks using Word ➤ Identifying descriptive stats
Week 4	02/04/2013	02/06/2013	LAB #3
Chapter 5 Chapter 6	➤ <i>Bonus Prep #1</i> ➤ Logic of z-scores	➤ z-scores (cont.) ➤ Probability (<i>Pr</i>)	➤ z-score analysis & interpretation ➤ Annotating SPSS output
Week 5	02/11/2013	02/13/2013	LAB #4
Chapter 7	➤ Probability (cont.) ➤ Logic of <i>Pr</i> & distribution of sample means	➤ Distribution of sample means ➤ Logic of hypothesis testing	➤ Tutorial on distribution of sample means
Week 6	02/18/2013	02/20/2013	LAB #5
Chapter 8	➤ NO CLASS! ➤ President's Day	➤ Hypothesis testing ➤ Effect size & power	➤ Survey data cleaning and organizing

Week & Reading		Date and Topics	
Week 7	02/25/2013	02/27/2013	LAB #6
Chapter 9 Chapter 10	➤ <i>Bonus Prep #2</i> ➤ Logic of <i>t</i> -test	➤ Cohen's <i>d</i> & CI's ➤ Logic of independent samples <i>t</i> -test	➤ Descriptive statistics for survey data ➤ Creating graphs
Week 8	03/04/2013	03/06/2013	LAB #7
Chapters 10	➤ Independent samples <i>t</i> -test (cont.)	➤ <i>Midterm Examination</i>	➤ Is your sample different from the population?
Week 9	03/11/2013	03/13/2013	LAB #8
Chapter 11	➤ Paired samples <i>t</i> -test	➤ Paired samples <i>t</i> -test (cont.) ➤ Overview & alternatives to <i>t</i> -tests	➤ How different are two groups?
Week 10	03/18/2013	03/20/2013	NO LAB
No Reading	<i>SPRING BREAK!</i> <i>NO CLASS!</i>		<i>SPRING BREAK!</i> <i>NO LAB!</i>
Week 11	03/25/2013	03/27/2013	LAB #9
Chapter 12	➤ Logic and notation of the Analysis of Variance (ANOVA)	➤ <i>df</i> for ANOVA	➤ How different are two scores from the same person?
Week 12	04/01/2013	04/03/2013	LAB #10
Chapter 13	➤ <i>Bonus Prep #3</i> ➤ Logic of Repeated-Measures ANOVA	➤ Repeated Measures ANOVA (cont.)	➤ How different are three or more groups?
Week 13	04/08/2013	04/10/2013	LAB #11
Chapter 14	➤ Logic of Two-Factor ANOVA	➤ Two-Factor ANOVA (cont.)	➤ Do behaviors change over time or in different conditions?
Week 14	04/15/2013	04/17/2013	LAB #12
Chapter 15	➤ Logic of correlation ➤ Pearson correlation	➤ Spearman Rho ➤ Logic of linear regression	➤ Does one IV depend on another IV?
Week 15	04/22/2013	04/24/2013	LAB #13
Chapter 16 Chapter 17	➤ <i>Bonus Prep #4</i> ➤ Linear regression ➤ Contribution of predictors in regression	➤ Parametric vs. Nonparametric tests ➤ Logic of Chi-Square Test	➤ Variables covarying and possibly predicting behavior?
Week 16	04/29/2013	05/01/2013	LAB #14
Chapter 19	➤ Chi-Square Test ➤ Choosing the correct statistic	➤ Choosing the correct statistic ➤ Review of course	➤ Work on Applied Statistics Assignment.

Week & Reading	Date and Topics
Week 17	05/10/2013
	➤ Final Exam: 2:00 p.m. to 4:00 p.m.

Syllabus as a Contract

The purpose of this syllabus is to provide a contract between you and the instructor. By enrolling in this class, you agree that you have read, understand, and will adhere to the syllabus guidelines and complete the assignments given in the class. I reserve the right to change the schedule of topics and readings and will give notice to you 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. Throughout the class I will present challenge questions or optional assignments that, if you complete successfully, will earn you a super statistician status.

Who can earn this status?

Anyone in this class may work to earn this status, but I will choose only *four* people who have shown excellence in the course through assignments, exams, participation, discussion, and correctly completing the challenge questions or optional assignments.

What you do you earn?

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