

Introduction to Psychological Statistics  
Psychology 2  
Summer 2016

Class Meetings: July 25 - August 26

Lecture: Tuesdays and Thursdays 9:00-12:30  
Location: Social Sciences 1, Room 145

Professor: Benjamin C. Storm, Ph.D.

Office hours: Mondays and Tuesdays 12:30-1:30, and by appt.  
Office location: SS2, Room 345  
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Prerequisites:

Psych 1 or 20, and Applied Mathematics and Statistics 2, 3 or 6 or Mathematics 3 or 4 or 11A or satisfactory placement score on math placement exam or CEEB Advanced Placement Calculus AB exam.

Course Description:

The course provides an introduction to elementary statistical principles and techniques relevant to psychological research. Topics covered include basic parametric and nonparametric statistics, analysis of variance, and simple factorial designs. This course is prerequisite to course 181.

Basic Course Information:

The course is designed to help students develop the conceptual background and practical skills necessary to critically evaluate the statistics encountered in their coursework and in everyday life, and to begin conducting statistical analysis of empirical data. Topics to be covered include statistical inference, probability distributions, sampling, hypothesis testing, correlation and analysis of variance. The goal will be to go beyond rote memorization of abstract formulas and for students to develop an appreciation for the critical role that statistics plays in psychological science.

To do well in the course, you should read the assigned material before class and reread previously assigned material as the course progresses. By reading the text before class you will be better prepared to ask questions and integrate the content of lectures with what was presented in the text. Also be sure to attend all lectures and arrive on time. Each topic builds directly on the previous one. Thus, if you miss one lecture, you run the risk of being completely lost in the next lecture.

The required textbook: Aron, Coups, and Aron, *Statistics for the Behavioral & Social Sciences: A Brief Course: 5<sup>th</sup> Edition*, Pearson. It is available from the Bay

Tree Bookstore in the form of an ebook, and can also be purchased online (often for a much cheaper price).

Additional class materials and homework assignments will be made available on ecommons. You will need a simple calculator (i.e., one that adds, subtracts, multiplies, divides, takes square roots, and has exponential functions). You do not need an expensive graphing calculator.

Please visit us!!! The professor will be more than happy to meet with you to answer any questions you might have about the course, statistics, or psychological research. Please feel free to drop in during office hours or set up an appointment.

### Evaluation

Final course grades will be determined by your performance on homework assignments and two examinations.

#### Homework Assignments (40%)

A homework assignment will be due every class meeting (except July 26<sup>th</sup>, August 9<sup>th</sup>, and August 25<sup>th</sup>). To receive credit you must turn in your assignment at or before the start of class. Late assignments will not be accepted. There will be seven homework assignments in total. Your lowest 2 scores will be dropped (this includes assignments that you fail to turn in).

Take the homework assignments seriously. Do not simply copy your classmate's answers. You might get the points, but you will be robbing yourself of important opportunities to learn (which will become apparent on the examinations).

#### Examinations (60%)

There will be two exams: August 9<sup>th</sup> and August 25<sup>th</sup>. Each exam will consist of a combination of short answer and multiple-choice questions. Computers and phones will not be allowed, but you are encouraged to bring a calculator as well as a single 8x11 sheet of paper with notes. You can write whatever you want on the paper as long as it is your own writing/typing.

### Additional Information:

Students with Disabilities: Any student who thinks they may need accommodation based on the impact of a disability should contact me privately to submit their Accommodation Authorization and discuss specific needs, preferably within the first two weeks of the quarter. Please contact the Disability Resource Center at 831-459-2089 in room 146 Hahn Student Services or by e-mail at [drc@ucsc.edu](mailto:drc@ucsc.edu) to coordinate the accommodations.

Distribution of Lecture Notes: Students may be disciplined for selling, preparing, or distributing course lecture notes for any commercial purpose, whether or not

they were the person taking the notes. The unauthorized sale of lecture notes (and handouts, readers or other course materials) is a violation of campus policies, state law and may also constitute copyright infringement subject to legal action.

Academic Integrity: Scholarship and academic integrity are core values that should guide our conduct and decisions as members of the UCSC community. Plagiarism and cheating contradict these values, and so are very serious academic offenses. Students who plagiarize or cheat on any assignment may be subject to various disciplinary actions including a failing grade on an assignment, failure of the entire course, and possible expulsion from the university. Be sure to follow appropriate citation practices and be sure to familiarize yourself with the University's Rules of Conduct.

<u>Dates</u>	<u>Lecture</u>	<u>Reading</u>
July 26	Introduction; Central Tendency; Variability; Z Scores	Chapters 1 & 2
July 28	Correlation and Prediction	Chapter 3
Aug 2	Normal Distribution; Samples; Probability	Chapter 4
Aug 4	Hypothesis Testing	Chapter 5
Aug 9	Exam #1 (test will begin at 10am)	
Aug 11	Z Test; Confidence Intervals; Effect Size; Power	Chapters 6 & 7
Aug 16	Introduction to the $t$ Test	Chapter 8
Aug 18	Independent-Samples $t$ Test	Chapter 9
Aug 23	Analysis of Variance	Chapter 10
Aug 25	Exam #2 (test will begin at 10am)	

### Research Participation (Extra Credit)

Students can earn up to three extra credit points by completing research hours (or alternative assignments) by 4pm on August 25<sup>th</sup>, 2016.

Follow these easy steps to sign-up for research projects:

- 1) Go to the E-Link website at <https://ucsc.sona-systems.com>
- 2) If you are enrolled in the class at the start of the quarter, then an account should already be created for you. To log in for the first time, click “Forgot Password?” to retrieve the pre-set password. For those who added the class late, or for some reason the system won’t let you log in, you may need to click “Request Account.” Only request a new account if the “Forgot Password” link isn’t working.
- 3) Always enter your UCSC email address. You will receive your password via email.
- 4) Log in and follow the instructions.

**IMPORTANT:** You can earn extra-credit points by either participating in studies (surveys or experiments) or writing papers (the alternative assignment). Studies are posted throughout the quarter. Plan ahead and complete them as soon as possible. Check online often for new studies. If you know you cannot make it, and if the time until the study is more than 24 hours, you can cancel on Elink. If you fail to show up for a study, or fail to cancel in time, you will be marked as having an “unexcused no-show.” If you accumulate three unexcused no-shows you will be prevented from signing up for more experiments. All participation must be completed by 4pm on the last day of instruction. Do not wait until the last week to sign up.

**What if you can’t find studies?** Although some studies may be available right at the start of the quarter, there may not be enough for everyone. Please be patient, researchers will post new studies throughout the quarter. There is usually a big spike in hours during the last couple weeks. If you are concerned about the availability of hours, please don’t email your instructors or TAs, instead email the pool administrator so that they can try to address the issue directly ([ucscresearchpool@gmail.com](mailto:ucscresearchpool@gmail.com)). This is also the best email to use if you have other troubles with getting credit for studies you’ve already participated in, or other pool related issues that arise during the quarter.

**Alternative assignment:** If you prefer to not participate in research projects (or if you are under the age of 18) you may substitute up to 3 two-page typed papers, each critically evaluating a psychology research article. If you are doing the alternative written assignments, they must be emailed directly to your TA or instructor by the last day of instruction. If you have any questions or concerns please contact the research pool administrator at [ucscresearchpool@gmail.com](mailto:ucscresearchpool@gmail.com).

Each paper should be 2 pages (double spaced, 12-point, times new roman) and critically evaluate a psychology research article (addressing the questions shown below). You will need to find articles published in 2015 or 2016 in one of the following journals: (a) *Psychological Science*; (b) *Psychonomic Bulletin & Review*; (c) *Journal of Personality and Social Psychology*; (d) *Developmental Psychology*.

- 1) What were the basic questions or hypotheses under investigation?
- 2) How did the researchers test their hypotheses?
- 3) What did the researchers find and how were these findings interpreted?
- 4) Are you convinced? Why or why not? Explain.