

UCLA PSYCHOLOGY 100A: PSYCHOLOGICAL STATISTICS Fall 2009

Lectures: Mondays and Wednesdays 2:00 – 3:15pm (1178 FRANZ)

Discussion: Fridays 2:00 – 2:50pm (1178 FRANZ)

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Class Web Site: <http://courses.psych.ucla.edu/course.php?srs=328304201&term=09F>

Please refer all administrative questions and enrollment requests to the Psychology Undergraduate Advising Office (1531 Franz Hall).

Course Overview and Goals:

This course introduces the statistics commonly used in psychological research. By course end, you should be able to:

- (1) Understand the basic concepts underlying descriptive and inferential statistics;
- (2) Perform basic statistical analyses;
- (3) Apply these concepts and procedures to the design, analysis, and interpretation of psychological research data.

Course Structure:

The material divides naturally into six sections: (1) Describing Data, (2) Statistical Inference and Estimation, (3) Hypothesis Testing, (4) Correlation and Linear Regression, (5) Chi-square and Nonparametric tests, and (6) Analysis of Variance (ANOVA).

The material builds cumulatively. For example, you must understand distributions to understand variability and you must understand variability to understand ANOVA.

Topics to be covered:

- (1) Describing Data (2 Lectures)
Research Design and Data Analysis, Distributions, Central Tendency, Variability
- (2) Statistical Inference and Estimation (3 Lectures)
Normal Distributions, Probability, Standard Scores, Distribution of the Mean, Parameter Estimation, Confidence Intervals
- (3) Hypothesis Testing (4 Lectures)
z Test and One-Sample t Test, Power and Effect Size, Two Independent Means, Two Dependent Means
- (4) Correlation and Linear Regression (2 Lectures)

Linear Regression and Error in Prediction, Predicting X from Y, Using a Linear Regression Line, Multiple Regression, Correlation

(5) Chi-square and Nonparametric Tests (1 Lecture)

(6) Analysis of Variance (ANOVA) (5-6 Lectures)

One-Factor Between-Subjects, Two-Factor Between-Subjects, One-Factor Within-Subjects

CALENDAR FOR PSYCH 100A – (subject to slight variations when needed)

Mon	Wed	Fri
9/28 Describing Data 1 — Introduction and Basic Concepts, Distributions. (Kiess Ch 1-3)	9/30 Describing Data 2 — Graphical techniques, Distributions and Central Tendency. (Ch 3-4)	Discussion Class
10/5 Describing Data 3 — Measures of variation. (Ch 5)	10/7 Statistical Inference 1 — Probability and Distribution. (Ch 6)	Discussion Class
10/12 Statistical Inference 2 — Normal Distributions (Ch 6)	10/14 Statistical Inference 3 — Point Estimation. (Ch 6)	Discussion Class
10/19 Statistical Inference 4 — Distribution of the Mean. (Ch 7)	10/21 MIDTERM 1 EXAM 20% of total grade. Bring your student ID and calculator.	Discussion Class
10/26 Statistical Inference 5 — Interval Estimation: Confidence intervals (Ch 7)	10/28 Hypothesis Testing 1 — z Test and One-Sample t Test. (Ch 8).	Discussion Class
11/2 Hypothesis Testing 2 — Power and Effect Size. (Ch 8)	11/4 Hypothesis Testing 3 — Two Means. (Ch 9)	Discussion Class
11/9 Linear Regression — Correlation, Linear Regression. (Ch 13 and 14)	11/11 Veteran's Day Holiday	Discussion Class
11/16 MIDTERM 2 EXAM 20% of total grade. Bring your student ID and calculator.	11/18 Chi-square tests and nonparametric tests (Ch 15)	Discussion Class
11/23 Analysis of Variance (ANOVA), One & Two-Factor Between-Subjects (Ch 10 & 11)	11/25 ANOVA, Two-Factor Between-Subjects 2. (Ch 11)	Discussion Class
11/30 ANOVA, One-Factor <i>Within</i> -Subjects 1 (Ch 12)	12/2 ANOVA, One-Factor <i>Within</i> -Subjects 2. (Ch 12)	Discussion Class
FINAL EXAM. Thursday, Dec 10, 2009, 11:30am-2:30pm 50% of total grade. Bring your student ID and calculator		

Course Requirements:

Study Plan: I will spend at least 12 hours a week on this class. I will pace and grade according to my expectations for an advanced UCLA undergraduate spending similar time. The material in this course is

cumulative. I urge you to be diligent from the beginning of the quarter.

Textbook: Kiess, H. O. *Statistical concepts for the behavioral statistics, fourth edition.*
Allyn and Bacon. Sections in Kiess with “Computational Formula” in the heading can be skipped

Calculator: Only 5 function calculators (having only plus, minus, multiplication, division, square root functions) will be allowed in exams. DON’T bring a programmable calculator to exams. If you buy your calculator from the UCLA student store, the Aurora HC108X, the Aurora HC502A, the Sharp EL-244MB and the Sentry CA270 are all acceptable. If you have a question about whether your calculator is acceptable, please show it to the professor or TA during their office hours.

Reading: Each section will have learning goals and assigned reading. These materials will be posted on the class web site. I will prepare lectures assuming that you have read the learning goals and the assigned reading.

Formulas: Statistics involves many formulas and derivations of formulas. Do your best to read these derivations because they will help you understand the concepts and help you remember the formulas. The formulas you will be required to remember for exams will be listed on the website. You can skip all sections in Kiess with the words “Computational Formula” in the heading.

Homework: Homework will be assigned weekly. The homework will not be collected. Answer keys will be provided for self-grading. Homework questions will be similar to exam questions.

Pop Quiz: There will be six random pop quizzes (multiple choice) during lecture days either at the beginning or at the end of the lecture. Only the best four will be counted towards your final score. Each pop quiz will cover materials taught in the previous two lectures.

Evaluation:

Scoring: Pop Quiz = 10%, Midterm 1 = 20%, Midterm 2 = 20%, Final = 50%

Bring your Student ID to all exams!

Grades: Your final course grade will be based on your total score (rounded to the nearest integer) strictly using the following scheme.

95-100	90-94	80-89	70-79	65-69	60-64	55-59	50-54	40-49	0-39
A+	A	A-	B+	B	B-	C+	C	C-	D

Getting Help:

Both the professor and the teaching assistant want you to succeed at learning statistics. If you have questions, please ask them in class, discussion, come to office hours or by email.

Study groups: One of the best ways to learn this material is to form study groups. Teaching is a great way to learn a subject, and study groups are students teaching each other. You will find that some homework questions will be best handled if you can discuss them with your peers. If you have trouble forming or

finding a group, come to the discussion section to find others looking for a study group.

Office Hours: The best way to use office hours is to come prepared. First, review the learning goals, then reread the chapter, review your lecture notes, and spend time working on the homework with a study group. Then come to office hours with specific questions on these materials. Bring your class notes and your homework to office hours.

Policies:

(1) This course is impacted, so you will only be permitted to add/drop during the first two weeks. During these two weeks, you may add/drop this course by using URSA. The professor cannot sign PTE forms at any time during the quarter. If you have any enrollment concerns, please visit the Psychology Undergraduate Advising Office (1531 Franz Hall) to meet with an academic counselor.

(2) There will be no scheduled makeup exams. Under rare and extreme circumstances (medical illness with complete medical documentation or death of an immediate family member with documentation), you will be excused from a midterm and given your percentile score from the final instead. If you already know you can't make a midterm, you need to take the other section of this course. If you miss the final, you will automatically receive a score of zero for final. No incompletes can be given in Psychology 100A.

(3) According to the Provost's policy, there will be NO changes to any exam or final grades except to correct clerical error.