SYLLABUS

Course: Psychology 270 (schedule #28910/Section 8); Statistical Methods in Psychology
Course Description: Introduction to the analysis of research data in psychology. Topics include measures of central tendency and variability, correlation, prediction, and hypothesis testing.
Prerequisites: Concurrent enrollment in or prior completion of Psychology 271 or its equivalent.
Credit: 3 units
Quarter: Fall, 2008
Time: Tuesday and Thursday, 1530-1645 (i.e., 3:30 to 4:45 pm)
Location: LS-246
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Background

A cursory read of a daily newspaper or weekly news magazine will find some type of reporting of data and statistics. For instance, in the Health section of the 8/9/05 SD Union, it is reported that 34.5% of San Diego county adults "always have someone to help with daily chores when they are sick" (pg. E3). In an article titled *Study Links Obesity to Friends……*"UCSD and Harvard researchers point a finger at an unlikely culprit [for obesity]: the subtle--perhaps even subsconscious--influence of spouses, family members, and, most important, close friends" (SD Union, 7/26/07). Or in an article dated 7/22/08 it is claimed that "More women leaving job pool"…women in their prime earning years are struggling with an unfriendly economy and retreating from the work force, either permanently or in long stretches".

Fom Time magazine (http://time.blogs.com/daily_rx/) in regard to: **Suicide Prevention Therapy** "There is nobody more likely to commit suicide than someone who has tried at least once before - a single suicide attempt may increase the risk of an eventual successful attempt 40-fold. But according to new findings, cognitive psychotherapy - a simple, increasingly well-established form of treatment - can cut that danger almost in half."

Thus, valuable information can be gleaned from the daily statistics we obtain from the many surveys and research projects conducted; information that can be parlayed into policy and action. However, it is just as important to be a critical consumer of the data, and not fall into the trap of believing every article, blog, or reporter that starts off their commentary with: "research suggests.......". In fact, a 7/27/05 article in the SD Union has the ominous title: "*Science Unbecoming.....*misconduct allegations suggest rise in faked data, phony patients and other dubious inventions". A side article reports that "a new set of federal rules is now in effect, placing the onus for identifying, investigating and reporting allegations of scientific misconduct on universities and institutions" (pg. F2). And one of the premier medical journals (i.e., *New England Journal of Medicine*) has made it a requirement that all authors who submit articles divulge their funding source. It is inarguable that data plays a integral part in our lives (whether we know it or not!!); therefore, developing skills for interepretation of data is critical.

Course Objectives

Even though the first statistics course can (and possibly may be!) a daunting experience, especially when one's self-confidence in mathematics comes up wanting, many students find that with willful diligence and fortitude, this subject matter is surprisingly intelligible, and even fun (at times!). This introductory course will provide a snapshot into a wide array of commonly-used statistical methodologies: equal emphasis will be placed on understanding both the (1) conceptual and (2) mathematical properties inherent in each of the techniques. Especially of importance is how these are applied in the real world, and examples will be frequently provided in class.

Helpful Hints/Platitudes

First of all you will find that the mathematics required for this course is not overwhelming; in fact, basic arithmetic (i.e., adding, subtracting, deriving square roots, etc.) is the rule here. However, it is essential that you keep up with the logic of the derivations as well as the concepts behind them, which will be discussed in-depth in the classroom. Hence, leading to my second point. Given the cumulative nature of this class, it has been my experience that those who are somewhat 'random' (which you will find out later in the course is not synonymous with "haphazard"!!!) in their attendance, will encounter some difficulties if they attempt to learn the material solely through reading/relying on the text. It is the combination of the lecture and in-class break-out sections that serve in amplifying and reinforcing the material in the text.

Again, I want to reiterate that the mathematics itself is not unduly complicated. Rather it is the logic that starts to become a bit complex, especially when we get to hypothesis testing. And it has been my experience that those who tend not to attend, and /or anticipate relying on their own resources to learn the material will not achieve an optimal performance in this class.

Course Requirements
1) Given the comprehensive (and cumulative) nature of the curriculum, **attendance** is strongly encouraged and should be adhered to per school policy.

2) **Homework.** Homework will be required on a weekly basis and an honor system is assumed (i.e., the results of your homework are solely due to your own effort; if it is found to be otherwise no credit will be assigned). Homework assignments will be discussed in class and hard-copies of the homeworks, if applicable, are to be downloaded from Blackboard. Note: homework will be collected at the beginning of class and then reviewed so please make a copy of your homework if you desire to follow along with the review. No points can be earned for homeworks submitted after the due date, unless contact is made with the instructor *beforehand.* The grading via checkpoint system for each individual homework is as follows:

Grade	%
√ +	100
√	75
√ -	50

IMPORTANT NOTE: It is required that all work on the tests and homeworks be based on your individual effort. This implies that you did not access other student's work. Failure to meet any of these conditions will result in a '0' grade for the given test/homework and a departmental requirement that any transgressions be reported. .

3) **In class exams (4).** Mixture of multiple choice, true/false, and calculation. Material from text, handouts, and lecture. Examinations will be closed book but formulas will be provided during the test. Calculators will be permitted, but nothing preprogrammed!!. Each quiz will be worth 75 points. Please bring Scantron Form No. **19641** to each test. **Note: cell phones will not be allowed in lieu of calculators, so please don't forget to bring your text and calculator for the tests. You will not be permitted to exchange/share texts or calculators during the exam.**

General etiquette!!:   For the consideration of others please turn off and/or do not use any electronic devices (i.e., texting, surfing the web, sending emails, etc.) during class instruction; if you have the compelling reason to do so please excuse yourself from the class. Thank you!

Grading

20% will count towards homework (75 possible points); 80% (20% for each exam; 300 possible points) will be accorded for the four (4) in-class examinations. Total possible points = 375. Grading will be commensurate with school policy. In the event of an emergency situation, make-up of tests will be granted but *only* when notification is provided **prior** to test administration. Late homework will not be permitted, excepting the rare emergency (and I am contacted beforehand). ***Extra credit will not be provided in this course!***

Text

Moore, D. S. (2007). The Basic Practice of Statistics. (4th Ed.). W. H. Freeman: New York.

Glaser, D. PSY 270: Statistical Methods in Psychology (consisting of handouts). Montezuma Publishing

<u>**Course Schedule**</u>
<u>**Bolded date indicates time of exam**</u>
<u>***Responsible for Introduction at start of each chapter***</u>

Sept. 2 & 4	Introduction; Distributions with graphs; Distributions with numbers
	Required Readings: Chap. 1 - 2
Sept. 9 & 11	Distributions with numbers (con't); normal distributions
	Required Readings: Chap. 2 - 3
Sept. 16 & 18	Normal distributions (con't); Scatterplots and Correlation
	Required Readings: Chap. 3 - 4
Sept. 23 & **25**	**Quiz 1 (chapters 1 to 4)**
	Scatterplots (con't) and Correlation
	Required Readings: Chap. 4
Sept. 30 & Oct. 2	Introduction to Regression
	Required Readings: Chap. 5
Oct. 7 & 9	Regression (con't); Producing Data: Samples
	Required Readings: chap. 5; 8
Oct. 14 & 16	Producing Data: Samples (con't); Producing Data: Experiments & Introducing Probability
	Required Readings: Chap. 8 - 10
Oct. **21** & 23	**Quiz 2 (chapters 5; 8 to 10)**
	Sampling distributions;
	Required Readings: Chap. 11
Oct. 28 & 30	Sampling distributions; Confidence Intervals
	Required Readings: Chap. 11 & 14
Nov. 4 & 6	Tests of significance
	Required Readings: Chap. 15
Nov. 11	***Veteran's Day: No Class!!!!***
Nov. 13 & **18**	**Quiz 3 (chapters 11; 14 to 16)**
	Tests of significance (con't); Inference in Practice
	Required Readings: Chap. 15 - 16
Nov. 20 & 25	Inference about a Population Mean
	Required Readings: Chap. 18
Nov. 27	***Thanskgiving: No Class!!!!***

Dec. 2 & 4	Inference about a Population Mean & Two-Sample Problems
	Required Readings: Chap. 18 (con't) & 19
Dec. 9 & 11	Two Categorical Variables: The Chi-square Test; One-Way Analysis of
	Variance (ANOVA): Comparing Several Means
	Required readings: Chap. 23 & 25 (won't have to do calculations)
Dec 18	**Final Quiz (chap. 18, 19, 23 & 25) + Comprehensive**
	TIME: 1530-1730 [i.e., 3:30 to 5:30 pm](per the catalogue)