

**SAM HOUSTON STATE UNIVERSITY**  
DEPARTMENT OF PSYCHOLOGY AND PHILOSOPHY

**PSYCHOLOGY 587: ADVANCED STATISTICS**  
**(3 Credit Hours)**  
FALL 2007

**INSTRUCTOR:** Craig Henderson  
AB IV, 327  
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**COURSE LOCATION:** Evans Building, Room 360 (Computer Lab)  
Tuesday, Thursday 3:00-4:50pm

**OFFICE HOURS:** Tuesday 9:00am-12:00pm  
Or by appointment

**REQUIRED TEXTS:** Gravetter, F. J., & Wallnau, L. B. (2007). *Statistics for the behavioral sciences (7<sup>th</sup> ed)*. Belmont, CA: Wadsworth.

George, D., & Mallery, P. (2007). *SPSS for Windows step by step (7<sup>th</sup> ed)*. Boston: Pearson.

**CALCULATORS:** Although the course will focus on microcomputer statistical applications, it will be necessary for you to have a calculator with a square root key.

**COURSE DESCRIPTION:** The major course focus will deal with the analysis of research questions that involve comparative research questions. That is, research scenarios designed to compare 2 or more groups of individuals on some dependent variable. As such, the course will introduce students to a family of statistical procedures known as the general linear model, more specifically analysis of variance (ANOVA) techniques. In addition, experimental and quasi-experimental research design procedures that are typical of these types of research scenarios will be discussed in detail. The intent of the course is to integrate the research design and statistical skills needed to address these types of research questions in the context of a published journal article or thesis/dissertation. To this end, you will be required to complete a number of computer-based assignments using the SPSS statistical package, and write your methods and results in a fashion that is consistent with APA style.

**COURSE OBJECTIVES:**

- A. To master basic statistics, understanding how to compute them, when to use them, how to interpret them, and how to write up the results in APA style.
- B. To conduct computer-based statistical analyses with SPSS, both implementing the procedures and correctly interpreting the results.

**COURSE ACTIVITIES AND REQUIREMENTS:**

- A. Attendance and active participation in classroom discussions.
- B. Complete assigned readings before class and integrate them with class discussions.
- C. Complete class projects.
- D. Complete class examinations.

**ATTENDANCE AND CLASS PARTICIPATION:** Class attendance is mandatory. If you need to miss class, please contact the instructor beforehand. It is expected that students will actively contribute to class discussion of the course material.

**COURSE PACKET:** I will be compiling a packet of lecture notes and course materials as the semester progresses. Course materials will be posted on Blackboard, and will be available at least one week in advance. It is your responsibility to download and print the materials prior to each class meeting. The materials will be in Adobe Acrobat format (i.e., .pdf files) and you will be able to open/print the documents from campus computer labs and/or your home PC.

**EXAMS:** There will be two exams during the course of the semester. Exams will be non-cumulative with one exception -- the final will contain a cumulative section that will require students to choose the correct statistical procedure for a number of hypothetical research scenarios. You will be allowed to use an 8.5 x 11 crib sheet during the exams. You may put anything you feel will help you on the crib sheet – formulas, examples, definitions, etc. If you have to miss an exam, you must inform me prior to the exam date in order to schedule an alternate exam time.

**CLASS PROJECTS:** There will be approximately 4-6 graded assignments throughout the course of the semester. These assignments will require you to apply the statistical procedures discussed in lecture, and will typically consist of an SPSS analysis, and in some cases an accompanying APA style write-up of the results.

**GROUP WORK:** In addition to the lectures, cooperative learning group activities will be assigned during many class meetings. It is expected that everyone take an active role in the group discussions.

**EVALUATION:** The final grade for this course will be based on a weighted average of exam grades, homework assignments, and in-class participation. Weights for final grades will be as follows:

- Exams: 60%
- Assignments: 40%

The course grade will be based on the following percentages of total points:

- A: 90-100%
- B: 80-90%
- C: 70-80%
- D: 60-70%
- F: less than 60%

**Instructor Evaluations:** All students will be asked to complete a course/instructor evaluation form toward the end of the semester.

**Student Syllabus Guidelines:** You may find online a more detailed description of the following policies. These guidelines will also provide you with a link to the specific university policy or procedure:

<http://www.shsu.edu/syllabus/>

**Academic Dishonesty:** Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. *See Student Syllabus Guidelines.*

**Classroom Rules of Conduct:** Students are expected to assist in maintaining a classroom environment that is conducive to learning. Students are to treat faculty and students with respect. Students are to turn off all cell phones while in the classroom. Under no circumstances are cell phones or any electronic devices to be used or seen during times of examination. Students may tape record lectures provided they do not disturb other students in the process.

**Student Absences on Religious Holy Days:** Students are allowed to miss class and other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Students remain responsible for all work. *See Student Syllabus Guidelines.*

**Students with Disabilities Policy:** It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should visit with the Office of Services for Students with Disabilities located in the Counseling Center. *See Student Syllabus Guidelines.*

**Visitors in the Classroom:** Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.

## TENTATIVE SCHEDULE

DATE	TOPIC	READING
August 21- August 23	Introduction Review of Statistical Fundamentals	G & W Ch. 1 SPSS 6, 7, 9 G & W Ch. 3-6
August 28- August 30	Review of Statistical Fundamentals	G & W Ch. 7-8
September 4- September 6	Hypothesis Testing and t-tests	G & W 9-11 SPSS 11
September 11- September 13	t-tests (ctd)	G & W 9-11
September 18	<b>Exam 1</b>	
September 20- September 27	Foundations of Analysis of Variance (ANOVA) Multiple Comparison Procedures	G & W 13 SPSS 12
October 2- October 4	Effect Size Power Analysis	
	<b>Assignment 1 Due</b>	
October 9- October 11	Factorial ANOVA	G & W 15 SPSS 13
	<b>Assignment 2 Due</b>	
October 16- October 18	Analysis of Covariance	Assigned SPSS 14
	<b>Assignment 3 Due</b>	
October 23- October 25	Repeated Measures ANOVA	G & W 14
October 30- November 1	Split Plot (Mixed Factor ANOVA)	Assigned
November 6	<b>Exam 2</b>	
November 8- November 13	Correlation	G & W 16

November 15- Regression  
November 20

G & W 17    SPSS 16

November 22- Chi-Square

G & W 18    SPSS 8

December 11 **Exam 3**

Please note that I have intentionally left some weeks open to allow for “catch up” if we need it.