Syllabus: Statistical Methods (18:820:581)  
Fall Semester, 2009

Instructor: Amanda McCluskey  
Class: A317 Wednesdays 5-7:45  
Lab: ARC 116  
Office: Room A356, Psychology Annex, Busch Campus  
Office hours: by appt. (note I’m usually in my office a few hours prior to class)  
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Required Texts


Suggested/Recommended
Any how to use SPSS for windows guides out there, two good ones are:  
Kirkpatrick, L. A., & Feeney, B. C.  A simple guide to SPSS for Windows

Kinnear, P. R., & Gray, C. D. SPSS 16 made simple. Psychology Press: 2008. or the SPSS 15 version of the book--they are very, very similar.

Other Required Readings
Other required readings will be posted on the Sakai site for the course. The ARC computer lab (next door) is a good place to print readings. They also have SPSS.

Objectives
This course will familiarize you with basic statistics and measurement including one-way and two-way ANOVA, repeated measures ANOVA, Mixed ANOVA, correlation, chi square, and reliability. You will get experience computing the tests and interpreting the results. You will need to make friends with a basic calculator and with the SPSS software (the computer labs, such as the one at ARC have SPSS). If you aren't able to finish the computer portions of the assignments during our scheduled time in the lab, you will need to go on your own. The statistics you will learn in this course are only the beginning--the basics necessary for understanding the statistics typically used in psychological and educational research these days. But don't be discouraged! The material covered in this course is the foundation; learning this material well will provide a strong framework on which future additions can be built.

Grading
Grades will be based on two examinations (30% each), a group computer data analysis project (30%), and class participation (10%). Exams will be open book. No make-up exams will be allowed unless prior approval is secured. Further information will follow on the group computer data analysis project. Grades will be assigned on each exam and on the project, and participation will be graded for the first and second half of the course. Class participation is based on weekly discussions from the assigned required readings.

Assignments
There will be approximately seven homework assignments. Assignments will be discussed at the beginning of class on the due date (which is always the following class); the answer key will be posted and discussed at that time. I encourage you to submit your assignments to me via Sakai. This allows me to review your work periodically, and assess student understanding prior to going over the solutions. I can then adjust future assignments/instruction as needed. I strongly urge you to complete each assignment on time, even though they do not "count" in your grade. Past experience suggests that thorough and timely completion of assignments is related to exam performance. Students are encouraged to work together on assignments however keep in mind that exams are completed individually so the focus should be on understanding. One reason I provide an answer key is so you can see the recommended wording—sometimes in statistics that can be an issue, so pay close attention to that.
Class Topics and Assigned Readings Note: Reading assignments may be changed in class. Further, some material not included in readings will be included in the lectures and may be included on the exams.

Sept. 2 **Introductions; Go over syllabus; Advice; Begin Review**

Sept. 9 **Continue Review of hypothesis testing;**
   **Using the computer for data analysis; ARC LAB session**
   Keppel, Saufley, & Tokunaga (1992): ch 1-2
   Stanovich: preface and ch 1-3;

Sept. 16 **One-way ANOVA; ARC LAB session**
   Keppel, Saufley, & Tokunaga: ch 3, 4, & 5
   Stanovich ch. 4

Sept. 23 **Magnitude of Effect; Power/sample size; ARC LAB**
   **Interpreting nonsignificant findings**
   K, S, & T: ch. 7 & 8; Fagley & McKinney (1983) Reviewer Bias;

Sept. 30 **Factorial ANOVA: sig, omega sq., power; ARC LAB**
   K, S, & T: ch. 9 & 10; Stanovich: ch. 6; mann (1981) A Cautionary Note on Omega Squared.
   Mitchell & Hart **ARC LAB session**;

Oct. 7 **Single-factor Within-subjects Design; ARC LAB**
   K, S, & T: ch. 11; Stanovich ch 7-9;

Oct. 14 **Mixed ANOVAs; ARC LAB**
   K, S, & T: ch. 12; Stanovich ch. 10-11;

Oct. 21 **Project presentations & Review for Exam**

Oct 28 **Exam I**

Nov. 4 **Correlation (sig., r-sq, power, ballantines); ARC LAB**
   Keppel, Saufley, & Tokunaga (1992) ch. 15;

Nov. 11 **Prediction/Bivariate Regression; Scatterplots (outliers, heteroscedasticity, curvilinearity). ARC LAB**
   Cohen & Cohen: ch. 2-focus on pp.41-51.
   Supplemental: Meyers, Gamst, & Guarino

Nov. 18 **Factors affecting r; Correlation, Reliability, & Interrater Agreement; ARC LAB**
   Kaplan: Reliability & Validity; Kerlinger: Reliability theory; Kazdin: interrater agreement; Rosenthal part of ch. 2: Sampling Judges and Encoders--intraclass correlation.
   Cohen & Cohen 2.11.1 to the end of chpt 2.
   Shavelson(1981)Sources of Misleading Correlations; Stanovich ch. 5

Nov. 25 **No Class - Thanksgiving**

Dec. 2 **Chi Square Analysis; Measurement of Constructs; ARC LAB**
   K, S, & T: ch. 14;
   Murphy & Davidshofer (1991)

Dec. 9 **Review**

Dec. 16 **Exam II**