

**BHS 310 *Quantitative Methods for Behavioural Science* (3)
Winter 2003**

Instructor: Alex Sanderson, Ph.D. **Office:** 5th Floor
Office Hours: M 9:45 – 11:00; 1:00 – 2:15 **Office Phone:** 571-2550, ext. 235
Class Times: W/F 9:45 – 11:00 **Home Phone:** 286-6605
Lab: M 11:15 – 12:30 **Location:** Room 2
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Required Text

Levin, J & Fox, J.A. (2000). Elementary Statistics in Social Research (Ninth Edition). Allyn & Bacon, Boston.

Course Description and Structure

This course is designed to give students a basic understanding of descriptive and inferential statistics. Emphasis is placed on practical application and students will learn to analyze and interpret basic statistical research. They will also learn to use computer software (SPSS 11.5) to create their own statistical tables and charts. The course will emphasize practical applications and as such, lab time will be spent working on the computer. Students will be required to work in groups of three for all lab work. As part of the course requirements, students will also participate in a group project where they will analyze data and present it in a written assignment.

Course Objectives

1. To have students develop skills in organizing quantitative data;
2. To have students acquire an understanding of the logic for each of several basic statistical techniques;
3. To have students develop skills in computing statistical techniques;
4. To have students understand appropriate applications for these statistics;

Course Requirements

Students need to be competent using computers and have a good working knowledge of basic mathematics (fractions, decimals, equations, etc.) in order to successfully complete the course.

No statistical software experience is expected. Students will need a pocket calculator for homework and exams. If your math skills are a bit rusty, there is a basic math review in the back of the Levin text. Evaluation will be based on four exams, a written assignment and homework/lab assignments. The first mid-term is worth 10%, 2nd mid-term 15%, 3rd mid-term 20%, and the final exam will be worth 25%. The writing assignment and the homework/lab assignments will be worth 15% each. Students will need a calculator, which can perform $\square x$, $\square x^2$, mean, variance and standard deviation.

Course Schedule

Part I:

Introduction to the Course
 The Connection Between Statistics and Research.
 Read: Chap. 1, pp. 1-19
 Organizing Data: Distribution and Graphics
 Read: Chap. 2, pp. 23-72
 Central Tendency
 Read: Chap. 3, pp. 73-95

EXAM 1 – Handed out January 31st and due back on Monday, February the 3rd

Part II:

Variability
 Read: Chap. 4, pp. 96-122
 Probability and Normal Curve
 Read: Chap. 5, pp. 123-157
 Samples and Populations
 Read: Chap. 6, 158-190

EXAM 2 – Fri, February 28th and due on Monday, March 3rd

Part III:

Testing Differences Between Means
 Read: Chap. 7, pp. 195-239
 Analysis of Variance
 Read: Chap. 8, pp. 240-264
 Non-Parametric Tests
 Read: Chap. 9, pp. 265-308

EXAM 3 – Wed, March 21st and due back on Monday, March 24th

Part IV:

Parametric Correlation
 Read: Chap. 10, pp. 309-336
 Non-Parametric Correlations
 Read: Chap. 12, pp. 363-395
 Regression

Read: Chap. 11, pp. 337-362
Statistical Applications
Read: Chap. 13, pp. 396-418

EXAM 4 (FINAL) Given out on April 11th and Due on Monday, April 14th

Written Assignment

As we have discussed in class, part of this course is designed to enable students to apply their knowledge of statistical concepts to 'real life' research and data analysis. This assignment gives you the opportunity to apply the concepts you have learned to an original research paper using a pre-existing data set (Supplied by professor). You are required to write a 4-5 page paper using double spaced type (1" margins and no more than 12 inch font) in which you demonstrate your ability to analyze variables and describe and interpret patterns within a data set. You will also need to present and interpret a table and a graph within the body of your paper. We will be discussing formatting (APA style) and different types of data analysis in class. The paper is due on April 7th. Please note all members of the group will receive the same grade for the completed assignment, with no exceptions.