Newsom
USP 534 Data Analysis I
Spring 2009

Final Exam Review
(100 points total)

Final: Tue June 9, 3:30 PM, Clay Building 202
The final exam is not explicitly cumulative. However, you will need to have a solid understanding of significance testing, sampling distributions, Type I and II errors, and similar basic concepts. The length and nature of the test are the same as the midterm exam. You will have the full 2 ½ hours to complete the exam if you need it.

Short Essay (40 points)
There will be 2 short essay questions, 20 points each. These are open-ended questions on definitions and concepts learned from the readings and lectures. Answers should be about 1 paragraph. I will pick 2 questions from the following set:

1. What are the four limitations of correlation outlined by your instructor? Name and describe each problem. Be sure to mention the kind of misleading conclusions might arise with each problem.

2. Explain the conceptual rationale of Analysis of Variance (ANOVA). Be sure to include a description of the concepts behind the ratio that Fisher used for the F-test and to compare that approach to the approach used by Gossett for the t-test.

3. Define and distinguish between *post hoc* and *a priori* tests used in conjunction with one-way ANOVA. Describe the problem of familywise error and when it is of the greatest concern.

4. What is a statistical interaction? Distinguish interactions from main effects. Describe a statistical interaction that you would hypothesize in your area of research (not an example from the book or class) and sketch a small plot of the hypothesized results.

Multiple Choice (30 points)
There will be 15 multiple choice questions worth 2 points each. These may be on *any of the assigned reading* or *the lecture material* from May 12th through June 2rd. The purpose of these questions is to make sure you have read the material and learned the concepts from the text and class lecture.

Computations (30 points)
There will be two computational problems (15 pts each). You may bring a single sheet of 8 1/2 X 11 paper, using both sides, *hand written* with any formulas that you think you may need. (Note: this sheet can only be used for the computation portion of the quiz). Please bring a calculator to class. I will supply any statistical tables you might need. Computations or interpretation of SPSS printouts will include one or more of the following. (In order to save time for some of these analysis, I may give you a partial printout or partially completed ANOVA table and ask you to compute the missing information).

Calculations

correlation, z-proportions test & confidence limits, margin of error, chi-square, one-way ANOVA

Printout Interpretations

Paired t-test, correlation, scatterplot, chi-square, z-proportions test, reliability, one-way ANOVA, Tukey test, within-subjects ANOVA, factorial ANOVA, simple effects, mixed factorial ANOVA