Final Exam Review
(100 points total)

Final: Tuesday, December 5 10:15-12:15
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. You will have two hours to complete the test (please return by 12:15 via email). There are no restrictions on use of notes or books or other sources, but you will not likely have enough time to look up all of the answers. You must complete this exam on your own.

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 and **in your own words**. I will pick 2 questions from the following set:

        1. Describe the differences between main effects, simple effects, simple effect contrasts, and main effect contrasts and when each is relevant. Use a real or hypothetical example from your research area (not from class, lab, or the readings) to illustrate. You should describe the distinctions in words, but you may use illustrations to aid your explanation.
        2. Explain how repeated-measures designs differ from between-subjects designs. Why does repeated-measures ANOVA have a statistical advantage over between-subjects ANOVA? Describe how the recommended *a priori* follow-up tests after a significant one-way analysis (assuming 3 or more levels) differ for the two types of analyses.
        3. What is the sphericity assumption and when is it relevant? What are the methods for adjusting significance tests if sphericity is violated? What are the recommendations made by Algina and Kesselman (1997) and your instructor for dealing with sphericity?
        4. Which circumstances are ordinal analyses useful for? Give a real or hypothetical example from your research area (not from class, lab, or the readings) of when an ordinal analysis might be valuable. Distinguish between the traditional Pearson chi-square test (of say a 3 × 3 table) from a loglinear ordinal analysis and state how the two analyses would provide different information in your example. What are the two methods of statistical tests of the association variable in loglinear analysis? Describe how these two methods would be used in your example.

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 Nov 7th through Dec 5th. 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 short computational or printout interpretation problems (15 pts each). Please have a calculator handy and have ready access to any statistical tables you might need. Computations or interpretation of SPSS or R printouts will include one or more of the following. (In order to save time for some of these analyses, I may give you a partial printout or partially completed ANOVA table and ask you to compute the missing information). Examples will be similar to problems appearing on HW 2 and HW 3.

Calculations
        z-proportions test & confidence limits, margin of error, one-way ANOVA

Printout Interpretations
        correlation, scatterplot, contingency chi-square, reliability analysis, factorial ANOVA, within-subjects ANOVA, mixed factorial ANOVA.