

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. I will pick 2 questions from the following set:

1. What is a statistical interaction? Distinguish interactions from main effects. Describe the pattern of a statistical interaction and main effects 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. Describe a test you would use to follow-up a significant interaction based on your example.
2. Name and describe two of the assumptions specific to within-subjects ANOVA discussed in class and state when they are relevant. How can researchers diagnose and address violations of these assumptions?
3. Give a brief, general description of the differences in designs in which within-subjects and between-subjects ANOVA are appropriate. What are the advantages and potential problems with within-subjects experimental designs? Explain conceptually how the error term differs in within-subjects and between-subjects ANOVA (for simplicity, consider just the two-level case).
4. What defines an ordinal variable as described in class? Name and describe two types of analyses used specifically for ordinal variables? Explain the linear-by-linear association model.

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 2nd through Nov 30th. 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, correlation, contingency chi-square test

Printout Interpretations

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