

Final Exam Review (100 points total)

Final Exam, Tuesday, March 18 10:15-12:05

The final exam is not explicitly cumulative. However, you will need to have a solid understanding of multiple regression models. You will have 2 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. Answers should be about 1 paragraph. I will pick 2 questions from the following list:

- In words, define an odds ratio. Explain how to interpret odds ratios for positive and negative relationships, being sure to specify how an odds ratio is interpreted for dichotomous and continuous independent variables. Illustrate these concepts with real or hypothetical examples. How does the nature of the predicted values and the residuals of logistic regression model differ from the OLS regression model?
- Describe the two statistical approaches to ordinal regression models discussed in class. Be sure to mention the specific data requirements that these models are used for and give an example. Explain the y^* latent response model that is traditionally associated with one of the two approaches. How does the interpretation of the intercept and regression coefficient in the two models differ from the interpretation of the regression coefficient in OLS regression?
- What is the generalized linear model and how does it differ from the general linear model? Name and describe the two main features of any generalized linear model and state when and why they are necessary, specifying these two features for two examples of types of generalized linear models to illustrate.
- Define multivariate analysis of variance (MANOVA) and describe the circumstances in which it is used. What is the unique statistical assumption for MANOVA? Which multivariate statistical test was recommended (among the several that are usually printed) by your instructor and why?

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 **2/13/25 (beginning with chi-square and simple logistic) through 3/14/19**. The purpose of these questions is to make sure you have read the material and learned the concepts from the text and class lecture.

Interpretation of Results (30 points)

There will be two printout interpretation problems from HW 2 or HW 3 (15 pts each). These questions may include one or more of the following:

Interpret:

Simultaneous or hierarchical dummy coded multiple regression with covariates, ANCOVA, quadratic models, interactions, simple slopes, mediation, simple and multiple logistic regression (including odds ratios, confidence intervals for B or odds ratios, and significance tests of coefficients, likelihood ratio tests, pseudo-R-squared values), including the overall fit (likelihood ratio “chi-square” test), ordinal regression, and MANOVA.