Final Exam Review
(100 points total)

Final Exam, Thursday, June 11 11:00-12:50
The final exam is not explicitly cumulative. However, you will need to have a solid understanding of multiple regression models. You will have approximately 2 hours to complete the test (please return by 12:50 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 and **in your own words**. I will pick 2 questions from the following list:

- Use a real or hypothetical example from your area of interest to illustrate a question that could be tested using logistic regression. Give two examples of hypothetical outcomes providing a specific example of an odds ratio that might be obtained, one for a positive relationship and one for a negative relationship. Provide an interpretation of the outcome in terms of percentage likelihood of the event.

- Explain the concept of fit in logistic regression. How is the effect of a set of variables tested in logistic regression? If a single predictor is added to the model, how does the change in fit relate to the test of the significance of a single variable slope? Describe the logic behind how lack of fit is used to derive measures of variance accounted for?

- Describe in words what type of questions multivariate analysis of variance (MANOVA) is designed to test. When is a MANOVA appropriate and when is it not appropriate? What are the important assumptions of MANOVA that differ from ANOVA? Name and describe two alternatives to conducting a MANOVA that would address the same research questions.

- Provide a definition of principal components. How are principal components related to important analyses used for psychological or social science research? Include a conceptual definition of eigenvalues. How does principal components analysis differ from exploratory factor analysis?

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 **5/12/26 (beginning with chi-square and simple logistic) through 6/4/26**. 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:**
> 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 (logit and probit), and MANOVA.