Midterm Exam: 2/11/21
You will have 1 hour and 45 minutes to complete the test (please return by 12:00 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 worth 20 points each. These are open-ended questions on definitions and concepts. Answers should be about 1 paragraph. I will pick 2 of the following questions:

- How does regression analysis partition the variance of Y into two components? (Keep it simple by assuming one predictor). Be sure to describe what the two components are, their conceptual meaning, and how they are derived.

- Results from a simultaneous multiple regression analysis include an R^2 value and regression coefficients. Conceptually, how does the information provided by the model R^2 value and a regression coefficient differ? If a hierarchical regression is conducted entering each of two variables on a separate step, an R^2-change value is obtained. What does the R^2-change value represent and how does it relate to the R^2 and regression coefficients from the simultaneous regression?

- Assume you need to find out whether there are differences in voter enthusiasm (a continuous measure) among 3 nominal categories of political party affiliation (i.e., Democrat = 0, Republican = 1, Independent = 2) for the coming midterm elections. You need to control for an index of voter likelihood. Name two major approaches to investigating the differences among the three groups that were discussed in class and describe how you would use them in the analysis. Be sure to state specifically how these two approaches are similar and different.

- List and describe the four causal criteria discussed in class and in the book. Explain how regression analysis can address each of these criteria. What are the limitations of regression analysis for addressing each of these criteria in conducting applied research?

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 up to and including 2/9/21 (through mediation, longitudinal, and causation). 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 and Interpretation of Results (30 points)
There will be two printout interpretation questions (15 pts each) that involve write-ups similar to those in the homework. You will need the "Summary of Regression Diagnostics" handout to use on this section of the exam. These questions may include one or more of the following:

Computations: none.

Interpretation: SPSS and R simple regression printouts; SPSS and R multiple regression printouts (hierarchical or simultaneous); intercept, standard error, R^2; B; β; t-test; F-test; R^2-change; F-change; scatterplot, diagnostic indices, residual plots, drawing and labeling a Venn diagram based on regression output.