Math 150, Spring 2021
Jo Hardin
WU # 3
in-class: Monday, Feb 1, 2021
due: Tuesday, Feb 2, 2021

Your Name: _____

Names of people you worked with: _____

Instructions: Work on this problem in class with your group (if you are attending class synchronously) or out of class (hopefully with a person or two! if you are attending class asynchronously). The problem should be done on a piece of paper with a pencil or on some kind of tablet. The problem should **not** by typed up or done in LaTeX.

Work for a *maximum* of 15 minutes on the problem (regardless of what time you are working). *Do not* come back to the problem to "fix it up" or "finish it." Be sure to write down the names of the people you worked with during class (or outside of class).

Take a picture of your work and use a scanning app to create a pdf (or create a pdf directly from your tablet). Upload your work to Gradescope (via Sakai) within 24 hours of class.

Task: Consider what we called "Model 2" last week:

$$y_i = \beta_0 + \beta_1 x_i + \epsilon_i \quad i = 1, 2, \ldots, n \tag{1}$$

$$\epsilon_i \sim N(0, \sigma^2), \text{ independently} \tag{2}$$

$$E[Y_i] = \beta_0 + \beta_1 x_i \tag{3}$$

$$\hat{y}_i = b_0 + b_1 x_i \tag{4}$$

Which part of "Model 2" (might be a full equation, might just be a word) demonstrates each of the following technical conditions:

- The average value for the response variable is a linear function of the explanatory variable.
- The error terms follow a normal distribution around the linear model.
- The error terms have a mean of zero.
- The error terms have a constant variance of σ^2.
- The error terms are independent (and identically distributed).