Hazel Ortiz

Worked with Justin and Anastasia in office hours

Week 10 Questions

**Q1. Why would we want a model selection criterion to penalize the number of parameters in a model?**

We would want a model selection criterion to penalize the number of parameters because having too many parameters, for example, can lead to less accurate results, overfitting results in more error, less reliability, and greater degrees of uncertainty.

**Q2. In 2 - 3 paragraphs, describe the meaning of the slope parameter β1 in the context of the relationship between the predictor variable, x, and the response variable y.**

The slope parameter of a simple linear regression asks what the change in y is with each change in x. So as x moves, y moves and β1 (slope) is the predictor. The slope helps to explain the relationship between the two variables x and y. We can use an example to better describe this relationship.

We can use a simple linear regression model to describe the relationship between crop yield and rainfall. In this example, crop yield is the y variable or the response that we are looking to measure, and precipitation is the x variable, the predictor. We will look for the slope to tell us how much the crop yield increases for each unit of precipitation

**Q3. What is the base case water treatment?**

In this case, the base case water treatment is the intercept value, which is 2.4

**Q4. What is the average plant mass, in grams, for the low water treatment? How do you calculate this quantity?**

The low water treatment is equal to the intercept value in this table. The low water treatment value average is also 2.4 grams. Since the low water treatment is the base case, it’s value will stay the same.

**Q5. What is the average plant mass, in grams, for the medium water treatment? How did you calculate this quantity?**

The average plant mass for the medium water treatment is 3.7 grams. To calculate the average, I added the intercept by the change. In this case the intercept is 2.4 and the change would be the medium water treatment, which is 1.3.

**Q6. Which of the following questions cannot be addressed with the model coefficient table? Select the correct answer or answers:**

I think the question that cannot be addressed with the model coefficient table is: “B. Is water availability a significant predictor for plant biomass accumulation?