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Analysis of Environmental Data
Week 10 Reading Questions
November 14, 2021 (sorry it was a day late, it's been a rough week)
Worked with no one

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

   **With the increase in parameters, the more chances for error you're introducing into your model. It helps protect against overfitting.**

2. 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.

   **For every 1 unit change in x, we expect a b unit change in y, on average. To help explain I will use the example of bear body condition and human supplied food. Human supplied food would be the predictor variable and body condition would be the response variable. With every 1 unit increase of human supplied food, there we expect a b unit change in y.**

   **B is the beta coefficient that is the degree of change (or the slope parameter). If b is positive, there will be a positive linear relationship between x and y. In our example, if the b is positive, with the increase in amount of human supplied food, there is an increase in bear body condition.**

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

   **Low**

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

   **2.4g. Since "low" is the base case, the average mass is the intercept.**

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

   **3.7g = 2.4 + (1 x 1.3) + (0 x 13.6)**
   **Total = base case + (1 x medium) + (0 x high)**

6. Which of the following questions **cannot** be addressed with the model coefficient table? Select the correct answer or answers:
   a. ~~Is there a positive relationship between increased water availability and plant biomass accumulation?~~

**b. Is water availability a significant predictor for plant biomass accumulation?**

~~c. What is the average biomass of plants in the high water treatment?~~