Ethan Rutledge

ECO 602

Week 10 Reading Questions

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

We want to penalize the number of parameters because we want the most precise number of variables that explain the variation. If it wasn’t penalized then we would just use every variable and it wouldn’t tell us anything of use. Something easier to interpret, less difficult to understand, gives the model more credit for explaining the data.

**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.**

If we were comparing the number of hours in a day to the rate of change in leaf color. We might expect to see a relationship between the predictor x (day length) and response y (rate of change in color). B1 is the change in y for every one-unit change in x. So for example if day length declines by 2 minutes every day, we expect to see a change in leaf color of equal proportion. That is just an example of linear regression, not real variables.

**Q3: Base Case**

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

Low (Intercept)

**Q4: Low Water Treatment**

**What is the average plant mass, in grams, for the low water treatment?**

2.4g

**How did you calculate this quantity?**

It is the average of 7 weeks of growth at the low water treatment

**Q5: Medium Water Treatment**

**What is the average plant mass, in grams, for the medium water treatment?**

1.3 + 2.4 = 3.7

**How did you calculate this quantity?**

It is the average of 7 weeks of growth at the medium water treatment

**Q6: Coefficient Interpretation**

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

B and C