2.3: Simple Model Inference

Dr. Bean - Stat 5100

1. Can you think of an example scenario where a test of significance would be of interest to researchers?

Consider the following

You wish to determine if Aggie ice cream is more fattening than other ice cream shops in Logan. Suppose your null hypothesis is: "Aggie ice cream has the same number of calories per cup as Charlie's ice cream." You then conduct a test and obtain a p-value of 0.048, indicating that there is evidence that the average caloric counts are significantly different. You then realize that you forgot to include five recorded observations in your study. When you include these additional observations, you obtain a p-value of 0.052, indicating no significant difference.

2. What will be your final conclusion based on this information?

3. Why are confidence intervals equivalent to hypothesis testing?

4. Why might the confidence interval approach be preferred to the p-value approach?

5. Why are we not usually interested in confidence intervals for β_0?

6. Why would prediction intervals always be larger than confidence intervals?