

Lesson 23: Inference for Bivariate Data

Preparation

Directions: Please fill in Part I as you study the Reading Assignment. Once you finish the reading, complete the questions on Part II. You may use your notes, the key, and the help videos. Be sure to take this completed assignment to your group meeting where you can ask and help answer questions on this assignment.

Problems

Part I: Use the information in the reading assignment to complete these questions.

1. What are the five assumptions to check in order to do inference for simple linear regression? How do we check for them? Answer these questions by filling in the following chart:
2. In the formula: $Y = \beta_0 + \beta_1 X + \epsilon$ state which each symbol stands for.

Part II: To answer the following questions, use the Gharial Crocodiles Data in the Wiki under the data link in Course Resources.

3. Check the five assumptions for conducting a linear regression on the data. List the five assumptions below and explain how you checked the assumption. Include charts/graphs where appropriate.
4. Test if there is a linear relationship between Head Length and Body Length. Let $\alpha = 0.05$
 - a. State the null and alternative hypotheses.
 - b. Let $\alpha = 0.05$
 - c. State the test static and value of test statistic
 - d. Based on the P-value, do you reject or fail to reject the null.
 - e. State your conclusion.
5. Create a 95% confidence interval for the true slope of the regression line relating Head Length and Body Length.