STAT 513 Assignment 2
Due Monday, 4/11

Read the problem description, but answer the following questions rather than those listed in the text. When citing minitab output, feel free to refer to displays from earlier problem parts. You don’t need to display the same output over and over.

Does weight mean fat? p. 45
1. Using minitab, create a scatterplot of Fat versus Weight. Note that fat is measured as a percentage and weight is in kg.
2. Use minitab to regress Fat on Weight and display the output. Then, using the output write the equation of the line that predicts the response variable Fat from the predictor variable Weight.
3. Write the “word equation” of the model in part 2.
4. If there was no linear relationship between Fat and Weight, how likely is it (i.e., what is the probability) that you would get an estimated regression slope as different from zero as the one that you obtained in part 2? Cite and present any relevant output used.
5. How strong is the evidence for a significant linear relationship between Fat and Weight? Cite an appropriate test statistic and p-value.
6. What proportion of the variability in the Fat data is explained by the linear relationship between Fat and Weight? Cite and present any relevant output used.

Dioecious trees, p. 46
1. Use minitab to graphically illustrate how Flowers and DBH are related and display the regression line on your plot. Where does the line tend to underestimate (and/or overestimate) the number of flowers? Note that DBH is measured in mm.
2. Use minitab to regress Flowers on DBH and display the output.
3. Refer to the model output of part 2. Write the equation of the line that predicts Flowers from DBH.
4. Test the null hypothesis that $\beta = 4$. That is, is there significant evidence that $\beta \neq 4$?
5. Produce your minitab plot again and double click on your points. Next, click on the groups tab and select SEX as the categorical variable for grouping. What does this new plot reveal?
6. Provide a point and 95% interval estimate for the number of flowers on a tree with DBH = 280 mm. Explain why you chose the type of interval that you did.
7. Is it appropriate to estimate the number of flowers on a tree with DBH = 390 mm? Explain.