Stat 350B
Spring 2011
Dr. Fan

Homework Set 3

This homework will not be collected.

1. Reading: Sections 12.1-12.5.

   Do the following exercises using Minitab:

   For the data in Ex. 12.56 (p. 757),

2. Write the LS regression equation and interpret each of the (partial) slope parameter estimates, i.e., $\hat{\beta}_1$, $\hat{\beta}_2$ and $\hat{\beta}_3$.

3. For steer #3, Calculate the predicted feedlot time and the residual.

4. Write the residual standard deviation and interpret.

5. Give a 95% confidence interval for β_1. Interpret your confidence interval.

6. Determine whether ANTIBIO has statistically significant predictive value when entered as the last predictor in the equation. Conduct a statistical test and include all steps of a hypothesis test.

7. Determine whether the three predictors together have statistically significant predictive value. Conduct a statistical test and include all steps of a hypothesis test.

8. Calculate the coefficient of determination and interpret.

9. Suppose $x_1 =$ PROTEIN, $x_2 =$ ANTIBIO and $x_3 =$ SUPPLEM, and you enter these predictors in the model in the order of x_1, x_2, x_3. Find $SSR(x_2 \mid x_1)$ and $SSR(x_3 \mid x_1, x_2)$. What do they mean?

10. Test whether adding ANTIBIO and SUPPLEM provides any additional predictive value, given that PROTEIN is already in the model. Include all steps of a statistical test.