APPLIED STATISTICS
TUTORIAL 5
Questions revised from "The Statistical Sleuth"

Question 3 in Tutorial 4 (Con'd, revised based on ex 10.09 from "The Statistical Sleuth")

As part of a study of the effects of predatory intertidal crab species on snail populations, researchers measured the mean closing forces and the propodus heights of the claws on several crabs of three species. This data is contained in the file "crab.csv".

    c) What is a 95% CI for the amount by which the slope for Cancer productus exceeds the slope for Hemigrapsus nududus?

    d) Is the regression model fit in (a) significant? Provide a p-value for the test.

    e) Are the slopes of the regression lines the same for the three species? (Hint: You will need to use the anova() command and an F-test)

Question 1 (revised based on the exercise in Chapter 10 from "The Statistical Sleuth")

The Old Faithful data used in class also contains a column called DATE. This column contains information on the day the data were collected. The data is contained in "oldfaithful.csv". Fit the regression of interval on duration and date (use seven indicator variables to distinguish the eight dates). Construct an F-statistic for the test of whether any difference in mean intervals is due to the date of recording. Find the p-value.