HOMEWORK #7 Due TUES OCT 17

INSTRUCTIONS:

A) *For each answer,* include a:
   1. summary output table and/or graphs, as appropriate
   2. short statement about how you handled assumptions and those outcomes
   3. short answer that clearly answers the question, based on the results.

B) Provide your code in an Appendix, organized so that we can relate it to questions

C) Submit a pdf (with your name in the file name).

Background for #1-3. Large chicken farms (e.g., 10,000 birds per barn) supplement standard chicken feed but require efficiency (greater weight per unit supplement). Chickens were randomly selected and fed 1 of 6 supplements (in the same amounts). Birds were weighed before and again 6 weeks later for weight gained (grams; chickwts.txt data set on the course web site).

1. [2 pts] Test the hypothesis that different chicken feeds caused different weights of chickens. Also test assumptions of your model.

2. [2 pts] Present a graph of mean weights with 95% confidence intervals, and interpret that graph in light of the statistical results, with a recommendation to Farmer Jones on which feed(s) to use.

3. [1 pts] What was the power of the chicken feeds experiment?

Background for #4-6. Plants are hypothesized to respond to grazing by producing more fruits. But larger plants also produce more fruit, which confuses the evidence for the hypothesis. To account for plant size, clever researchers include plant size (here root dry mass) as a covariate in analyses. The plant *Ipomopsis* was used in an experiment, where "grazed" plants were trimmed with scissors and compared to ungrazed plants for subsequent grams of fruit produced.

4. [2 pts] Test assumptions and analyze the ipomopsis.txt data set to evaluate the hypothesis that grazing stimulates fruit production. Also test assumptions of your model.

5. [2 pts] Explain your results, including a graph of mean weights with 95% confidence intervals.

6. [1 pts] What was the power of the grazing experiment?