HOMEWORK #11 **DUE NOV 14**

INSTRUCTIONS:

A) For each question, include a:

1. a narrative answer that directly and clearly answers the question, or
2. a summary output table and/or graphs, as appropriate.

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).

Using the carrots.txt data set on the course web site:

Six carrot plants (ID 1-6) were grown from seed hydroponically, with fertilizer. Another six carrot plants were grown identically but without fertilizer (controls, total N = 12). Roots of each plant were measured (cm) for length every two weeks for 10 weeks (thus 12 X 5 = 60 rows of data), when the experiment ended.

1. Analyze this simple *repeated-measures* experiment and tell us:
   a) Did fertilizer clearly increase carrot root length? [2 pt.]
   b) If so, *how much* did fertilizer increase carrot root length after accounting for repeated measures? [2 pt.]
   c) Work with residual distributions as needed (with family = ___) and show us that model assumptions were OK. [2 pt.]

2. Now analyze the carrot experiment (*incorrectly!*) as if every week's measurements were independent samples of different plants (i.e., pretend this was not a repeated-measures analysis).
   a) Show your results. [2 pt.]
   b) How would your answers to #1 above change? Why the difference? [2 pt.]