HOMEWORK #11 DUE NOV 25

INSTRUCTIONS:

- Submit a pdf (with file name that includes your name or initials).
- Provide your relevant code in an Appendix, organized so that we can relate it to questions.

Flowers

See the `flowering.txt` data set on the course web page. A fully randomized experiment was conducted to find out how varieties of a flowering plant differ in their response to a growth hormone. Another way to think of this is: how does the effect of dose change with variety? Five different varieties of a flowering plant were sprayed with each of six different doses of the same growth hormone. Reported data are: flowered (count of plants that flowered), number (number of plants sprayed), dose (hormone concentration), variety (five plant varieties). The variable `percflowered` represents flowered/number – i.e., the proportion of sprayed plants that flowered. This varies from 0 to 1 and is the response variable here.

1. Compute and show results of the logistic model for the experiment. [2 pts]
2. Interpret the results in words to a nonstatistical audience. [1 pt]
3. Graph the results and relate that graph, using words, to your answers 1 & 2 above. [2 pts]

Parasites

See `parasites.txt` on the course web page. Here we explore an observational data set collected through the years by a veterinary practice. Health records for dogs were recorded, where infected (no = 0, or yes = 1) represents whether a dog was ever found to have heartworms in its life, and potential predictors of that infection are age (in months, at death), weight (pounds, at death), and sex (male or female). Our goal: can we predict heartworm infection, to help steer veterinary diagnoses?

4. List as simple equations, and justify, your alternative models to test. [1 pt]
5. Compute alternative models (to match the above hypotheses, and don't forget a null!). [1 pt]
6. Which alternative model is most plausible? [1 pt]
7. Explain in words what the model results tell you. [1 pt]
8. Graph your most plausible model, where the graph includes the predicted model and data. [1 pt]