

STAT 700, Fall 2011
Homework 5 Problems
due Wednesday October 5

1 Problem. Please follow the Lab report directions off the homework web page.

1. **Please read Lab2 Two-Way ANOVA Section.** The survival times (in hours) for animals in an experiment whose design consisted of three poisons, four treatments, and four observations per cell (Ref: Rice, 1995)

We will use data available off the class web page:

`http://www.rohan.sdsu.edu/~babailey/stat700/poison.dat`

You can use the header information already in the file.

(a) Plot the data using strip charts and interaction plots. Describe any differences or interactions that you see.

(b) Conduct a two-way ANOVA to test the effects of the two main factors and their interactions. Give the R ANOVA table and state your conclusion. Include diagnostic plots of the residuals. Use the Bonferroni method for multiple comparisons to determine if there are significant pairwise difference among poisons and among treatments. (Make sure that a factor is a factor!)

(c) Box and Cox (1964) analyzed the reciprocals of the survival data, pointing out that the reciprocal of survival time can also be interpreted as rate of death. Conduct a two-way ANOVA, and compare your results to part (b).