Spring 2003 (Newton) 15.075 Applied Statistics

Homework # 8 assigned 14 April 2003, due 23 April 2003

Read Chapter 12 in Tamhane and Dunlop and Chapter 16 (pages 568-577) in the S-Plus On-line Doc Guide to Statistics, Volume 1. Then do the following problems.

Use the function **aov** in S-Plus to fit the models for this chapter. This function is very similar to **lm**, but will yield additional information on request. You can say something like **my.aov<-aov(*y*~*x1*+*x2*,data=*dataf*)**, where *y* is the response variable in the data frame, *x1* and *x2* are categorical predictors (factors) in the data frame and *dataf* is the name of the data frame. If x1 and x2 actually are numeric, but you wish to treat them as categorical, you can say **my.aov<-aov(y~as.factor(x1)+as.factor(x2),data=dataf).**

Now **summary(my.aov)** gives an analysis of variance table, **summary.lm(my.aov)** gives regression coefficients. As before, **fitted(my.aov)** gives the fitted values and **resid(my.aov)** gives the residuals. See the S-Plus documentation for some new plotting functions which can be useful.

1. 12.4 The data in Ex12.4 are not correct. Use the file posted on the class server. As discussed in the S-Plus documentation, you can say model.tables(my.aov, type="means") to obtain the site means.
2. 12.10 Find the means from fitted(my.aov) or from model.table(my.aov, type="means"). Compute the confidence intervals on the differences between the means by hand.
3. 12.16
4. 12.18
5. 12.20
6. 12.24
7. 12.26
8. 12.28