Biology 4605 / 7220 Name _____
Quiz #5a 21 October 2005

Four subjects participated in an experiment to compare three methods of relieving stress. Each subject was placed in a stressful situation on three different occasions. On each occasion a different method was used to reduce stress in each subject. Reduction in stress ( ) S) was measured for each subject on each occasion (from Daniel 1995, p 312).

1a. Define the explanatory variable, with symbol. _____

Write a general linear model to examine whether the three methods differ in effectiveness of stress reduction. Assume that all four subjects have similar base levels of stress and that all four respond uniformly to method.

1b. Partition the degrees of freedom and complete the ANOVA table assuming SStotal = 10 and that the model explains 10% of the variability (10% of SStotal).

Source	df	SS	MS	F-ratio

2. W.W. Daniel (*Biostatistics*. John Wiley, 1995 p 408) gives data for mercury in the blood (Hg_{blood} = ng/g) and mercury intake (Hg_{intake} = : g Hg /day) from fish in 12 people. Here is a plot of residuals versus fitted values for this regression.

Comment on whether a linear model is appropriate for this data.