Name _____

Psychology 516
Applied Multivariate Analysis
Homework 2
Due 9/18/2018

The file, Set_2.csv, contains data for four variables and four groups.

1. Conduct a standard ANOVA on each of the measures using aov( ). Are the groups different on each of the measures? If so, conduct post-hoc comparisons using Holm correction, indicating the pairs of means that are significantly different.

2. Now combine all of the information for groups and variables into a no-intercept model using lmer( ). Test the following hypotheses about group differences by constructing an appropriate contrast using glht( ) in the multcomp package. Test these hypotheses for <u>each</u> of the four measures: (12 contrasts in all, correct using the Holm method).

   (a) The mean for Group 1 is different from the mean for Group 3
   (b) The mean of Groups 1, 2, and 3 is different from the mean for Group 4
   (c) The mean of Groups 1 and 2 is different from the mean for Groups 3 and 4

3. Now construct contrasts for the following hypotheses, ignoring groups (3 contrasts, correct using the Holm method).

   (a) The mean for DV1 is different from the mean for DV2
   (b) The mean for DV1 and DV2 is different from the mean for DV3 and DV4
   (c) The mean for DV1, DV2, and DV3 is different from the mean for DV4

4. Finally, test each of the hypotheses from Question 3, but combine them with each of the following group questions (a total of 9 contrasts, correct using the Holm method):

   (a) Just consider Group 1 alone
   (b) Compare Group 2 to Group 3
   (c) Compare Group 1 to the combination of Groups 2, 3, and 4.