STAT/ME 424 HW 4
(due 9 AM Tue, Oct 18, 2022, in Canvas)

1. Twelve orange pulp silage samples were divided at random into four groups of three. One group was left as an untreated control while the other three groups were treated with formic acid, beet pulp, and sodium chloride, respectively. The observed moisture content of the silage samples are shown below.

Sodium chloride	Formic acid	Beet pulp	Control
80.5	89.1	77.8	76.7
79.3	75.7	79.5	77.2
79.0	81.2	77.0	78.6

   (a) Obtain an analysis of variance table for the data and test the null hypothesis that all four treatments yield the same true average moisture content. Use $\alpha = 0.05$.

   (b) Compute a 99% confidence interval for the difference in response between the average of the three treatment groups (acid, pulp, and salt) and the control group.

   (c) Compute 95% simultaneous confidence intervals for the differences in response between each of the three treatment groups versus the control group. Use the method among Bonferroni, Tukey, and Scheffé, that give the shortest intervals.

2. In an experiment with five treatment groups and 25 residual degrees of freedom, for what numbers of contrasts is the Bonferroni method more powerful than the Scheffé method?