HUDM 6122
Spring 2020

Homework # 4

Due on 2/19/19 at 3:00 pm

1. Use the data from Problem 5.11 on p. 263. Test the hypotheses:

$$\mathrm{H}_0: \boldsymbol{\mu} = \begin{bmatrix} 0.5 \\ 20 \end{bmatrix} \; vs. \; \mathrm{H}_1: \boldsymbol{\mu} \neq \begin{bmatrix} 0.5 \\ 20 \end{bmatrix}$$

   Calculate the Hotelling's T^2 statiscit, the scaled F critical value, the p-value, and then state the conclusion. Use $\alpha = 0.08$.

2. Redo Example 6.1 (Exercise at the end of class), but after removing observation number 8, which has unusual values. Perform again the paired T^2-test at the same α level as in class. Does the outlier make a difference in the conclusion of the hypothesis test as compared to class?

3. Adopted from Q6.28 on p. 350. Use the data from Table 6.15.

   a) Test equality between the means of the two species at $\alpha = 0.05$.
   b) If the null hypothesis is reject, which variable contributed the most to the rejection?
   c) Create 95% simultaneous CI's for difference in the means between the two species for each of the 7 variables.