

STAT 8250 — Applied Multivariate Methods
Lab – Due: Monday, Oct. 9

Copy file `auto1.sas` from the public directory to your home directory, run it, and look at the program and output. The data contained in `auto1.sas` include specifications and measurements on 74 models of automobile from the 1979 model year. Values for ten variables are contained in this data set: x_1 = price in dollars, x_2 = miles per gallon, x_3 = headroom in inches, x_4 = rear seat clearance in inches, x_5 = trunk space in cubic feet, x_6 = weight in pounds, x_7 = length in inches, x_8 = turning diameter in feet, x_9 = displacement in cubic inches, and x_{10} = gear ratio for high gear.

The SAS program `auto1.sas` computes confidence intervals for the individual component means μ_1, \dots, μ_{10} that have a joint coverage probability of 0.05. Intervals are computed based on the Bonferroni method first and then recomputed using the max- t approach.

Now consider the data of table 1.6 in the text. This table gives the mineral content in the bones of 25 older women. Six bones were measured per subject, the radius, humerus and ulna on both the dominant and non-dominant sides. These data appear in file `t1-6.dat` which you should copy from the public directory to your home directory.

1. Write a SAS program similar to `auto1.sas` which computes Bonferroni and max- t simultaneous intervals for the six component means corresponding to the variables of table 1.6.
2. Which approach gives the wider intervals?
3. Which approach do you prefer for this situation?