STAT203 **Homework #7 – on Chapters 10 and 12**

Due by 10am (at the start of class) on Tuesday, 6th November

Directions: Please type up or write up very, very neatly your answers to the following exercises *showing all work and calculations*.

A. Exercise 10.8 on p. 287, and also find Corr(X,Y) for this exercise. Yes, correlation coefficients can be negative.
B. Exercise 10.18 on p. 289.
C. Exercise 12.6 on pp. 338-9. Please omit the last line in the statement of this exercise on p.339 ("Although we don't know …"). This exercise is a one-sample T exercise since we use the sample SD in place of the population SD. Even though the authors are correct that it won't much matter, it is a bad habit to treat this as a Z exercise as they suggest. Also, even though we are sampling here without replacement, since the population size (N) is 'large' relative to the sample size (n), we don't need to adjust the SE (standard error) as in the second equation on p.317.
D. Exercise 12.16 on p. 347. Even though this is a one-tailed problem as it is stated (what else would a consumer testing organization be on the lookout for?), let's change the problem to instead be 'a group of curious chemists' instead of a 'consumer testing organization', so that there is no preconceived idea of whether the mean should be above or below 60 minutes, and thus the chemists are just looking for a 'difference'. Hence, do the two-tailed test. (Also, note in passing how subtle was the implied alternative hypothesis in the original statement of the problem.)
E. Exercise 12.20 on p. 349. Remember, with count and discrete data, when we use the NA (normal approximation), always use the CC (continuity correction).

The following exercises should be worked through but not turned in: Exercises #12.17 p.349, #12.19 p. 349, #12.23 p.350, #12.25 on p.350, and #12.27 on p.350.