**Stat 415/615, Regression, Sec 1, HW 5** **Fall 2018**
***Due: Thursday, October 11***

- Midterm Exam is scheduled on Monday, October 15. It will cover simple linear regression and the introduction to multiple linear regression, including partial F-test for several slope parameters. Software skill is not necessary for the test, but you are expected to know how to read the output. It is a closed-book, closed-note exam. You can bring a calculator, 2 pages (letter size, single sided) of reference sheets, and have access to computer/internet for probability calculators.
- You should have formed your project group(s) by now. Please come to my office hours for a discussion of project ideas or topics Thursday, October 18.

The following questions are from Ch.6. They use the same data set. Read all questions first so that you don't need to run the analysis repeatedly. Use R, SPSS or other software to get the results. (p.249)

1. Problem 6.9
   - In part a, you can use histogram instead of stem-and-leaf plot
   - In SPSS, an index plot (in this case, a time plot) can be obtained by Analyze→Forecasting→Sequence Charts
   - In R, use the following function ("l" is the lower case of letter "L")
     > plot(*variable*, type="l")

2. Problem 6.10 (omit e)

3. Problem 6.11

4. Problem 6.12
   - For part (a), find the critical values for both procedures. Then, use Bonferroni method to get the CI.
   - For part (b), use scatter plot between the predictors (x-variables) to check possible extrapolation.

5. Problem 6.13
    - For part (a), find the critical values for both procedures. Then, use Bonferroni method to get the CI.
    - For part (b), use scatter plot between the predictors (x-variables) to check possible extrapolation.

The following 3 questions will use partial F-test. We will discuss this topic on Monday, Oct. 8. These questions use the same data. Read all questions first so that you don't need to run the analysis repeatedly. Use R, SPSS or other software to get the results. (p. 289)

6. Problem 7.5 (b)
    - You can work on part (a) for extra credit.
    - In part (b), compare your F-test statistic and p-value to the t-test statistic and p-value in the output. Comment.

7. Problem 7.6

8. Problem 7.9

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