STAT 6430 **Homework 4**

Please submit your annotated R code in a file titled `hw04.R`, along with the text files requested below.

Each problem in this assignment requires predictions for the value of a response variable based on the value of a single explanatory variable. For this assignment, you should use a linear model to make your predictions. (We will develop other prediction methods soon.) It is fine (and possibly appropriate) to use additional terms and transformations as discussed in class.

For this problem, once you have your predictions, put them into a vector such as `predvect`. (Only the predictions, not the x values.) Execute the code

```
write.table(predvect, file = "predfile.csv", row.names=F, col.names=F, sep=",")
```

This should generate a CSV file `predfile.csv` that will correctly format your predictions for review. (Open in Excel – you should see the first column (no header) filled with your predictions.)

For this assignment, you will submit your R code. Your code should be neatly organized with comments to provide documentation. You should not only include the code used to make your predictions, but also include a brief statement describing how you arrived at your choice. The code should be included in a single R file, labeled `hw04.R`.

1. This problem requires the data contained in two files, `hw04p01train.csv` and `hw04p01predict.csv`. The objective is to predict the weight (in pounds) of a car with a given engine displacement (in cubic inches). Use the data in `hw04p01train.csv` to develop a linear model, then predict the weights of cars with the given displacements contained in `hw04p01predict.csv`. Export your predictions to the file named `hw04p01mypredictions.csv`.

When you are finished, upload the files `hw04.R` and `hw04p01mypredictions.csv` into the Assignments in Collab.