**Lab – Multiple Regression**

For this assignment you will be using multiple regression to build models to predict individual differences in a number of variables, including

* Academic achievement
* Symptoms of post-traumatic stress disorder in a sample of approximately 45 survivors of the 9-11 attacks on the World Trade Towers

You can download the datasets in lab via the class web page.

**Dataset # 1: Achievement.sav**

These data are based on teacher ratings of academic achievement among a group of 5th graders.

1. What are the correlations among achievement (ACHIEVEG5), maternal education (MATEDU), and socioeconomic status (SES)?

2. Because SES and maternal education are positively correlated, it is valuable to statistically control one when examining the relation of the other to achievement. Build a regression model that predicts achievement (ACHIEVEG5) as a function of both SES and MATEDU. What are the standardized regression weights for both of these variables? Do both variables predict achievement even when they are mutually statistically controlled? What is the R-squared for the model?

3. Does one of these variables predict ACHIEVEG5 better than the other?

4. What is the predicted value of z(ACHIEVEG5) when people are at the mean (i.e., a score of 0) for both z(MATEDU) and z(SES)? What is the predicted value of z(ACHIEVEG5) when people are one SD above the mean (i.e., a z score of 1) for both z(MATEDU) and z(SES)?

**Dataset # 2: WTC.sav**

These data are drawn from a sample of approximately 45 individuals who survived the attacks on the World Trade Center on Sept. 11, 2001. The dataset contains measures of symptoms of post-traumatic stress disorder shortly after the incident (**b0ptsd**), measures of depressive symptoms (**b0dep**) shortly after the incident, gender (**gender2**) coded as 0 for women and 1 for men, and a personality dimension called “avoidance” (**Zavoid**), which refers to the extent to which people are uncomfortable opening up to and depending on others.

5. What are the correlations among avoidance, gender, and PTSD symptoms (b0ptsd)? Explain what these correlations mean in sentences.

6. Build a regression model to predict PTSD symptoms (b0ptsd) from both gender2 and Zavoid. What are the standardized regression parameters? What is the R-squared for the model?

7. Are there any other variables that you can add to the model that increase R-squared by more than 1%? Summarize and discuss your findings.