Stat 500   **Lab 7**

Objective:
(1) Use SAS to conduct one-way ANOVA analysis, model diagnostics, and Kruskal-Wallis test.
(2) Use SAS to analyze an example of matched pair design.

1. One-way ANOVA analysis of the donut example.
a) From the SAS output of analyzing the donut example dataset using SAS code donut.sas, find the full ANOVA table and analysis of the different types of cooking oil on the oil absorbed.

b) There are three orthogonal contrasts specified in the SAS code. Describe the analysis provided by these contrasts and determine which are statistically significant. Write a summary of your findings.

i) Use output from the 'estimate' statement.
ii) Use output from the 'contrast' statement.

c) Check the assumptions of equal variances and normality using SAS output.

d) Perform Kruskal-Wallis test.

2. We have discussed the Monkey Nerve Cells Study in lecture. Today, we use SAS to analyze this dataset.

a) Describe the blocks being used in this experiment.

b) Describe why this is a matched pairs experiment.

c) Conduct a hypothesis test to determine whether or not the mean CP level is lower when nerves were severed. Use $\alpha = 0.05$.

d) Check the assumptions for the hypothesis test.

e) Perform Wilcoxon signed rank test. Give the null and alternative hypothesis, test statistic, p-value, and conclusion.

f) Perform the sign test. Give the null and alternative hypothesis, test statistic p-value, and conclusion.