Last week's lab looked at the data on nonstructural carbohydrates (NSC) concentrations (mg/g) in sapling stems in moist semi-evergreen and dry deciduous tropical forests in Bolivia. The data are available on the course Web site:

http://www.public.iastate.edu/~wrstephe/stat401.html

Use JMP to look at the comparison of moist to dry forests. It is not sufficient to simply hand in JMP output. You must answer the questions completely. Turn in the JMP output attached at the end of your written (word processed) solutions.

1. Two-sample problem.
   a) Summarize the NSC concentrations graphically and numerically for each type of forest. How do dry forests compare to moist forests in terms of NSC concentrations?
   b) Do the dry forests differ significantly from the moist forests in terms of average NSC concentration? Perform the appropriate test of hypothesis. Use $\alpha=0.05$.
   c) Report the value of a 98% confidence interval for the difference between the mean NSC concentrations for dry and moist forests. Give an interpretation of this interval. Use the interval to test to see if the difference in mean NSC concentrations between dry and moist forests is statistically significant.
   d) Use JMP to create the residuals for the two types of forest, dry and moist. Use Analyze + Distribution to create JMP output that looks at the distribution (histogram, box plot and Normal Quantile Plot) of the resulting 69 residuals.
   e) Refer to the histogram of residuals and indicate what you see and what this tells you about the condition that the random errors are normally distributed.
   f) Refer to the box plot of residuals. Are there any possible outliers? If so, what are the corresponding NSC concentrations, species and type of forest? What does the box plot tell you about the random errors being identically distributed?
   g) Refer to the Normal Quantile Plot of residuals and indicate what you see and what this tells you about the condition that the random errors are normally distributed?
   h) Comment on whether or not the data are consistent with the condition that both populations (dry and moist) have the same standard deviation. This will require further analysis with JMP.
   i) Summarize what you have learned about the conditions necessary for statistical analysis of data from your analysis of residuals.

2. On a separate piece of paper write a brief summary of what you have learned about NSC concentrations in trees/shrubs in moist and dry tropical forests.