

The objective of this assignment is continuing practice with the SAS software. In addition to the SAS programming components used for assignment 1, this assignment will require

- 1) input of an external data set,
- 2) starting the data input on the second line of the dataset. The first line reads "OXYGEN BONEGRP" and is followed by data on the second line. These are the input variables. The first variable (oxygen) is quantitative and the second is an alphanumeric character variable.
- 3) running an Analysis of Variance using both PROC GLM and PROC MIXED.
- 4) Output of residuals with the option `"/ outp=somename"` on the MODEL statement of the PROC MIXED. Print this dataset and note that it contains the predicted values (PRED) and residuals (RESID).
- 5) Use PROC UNIVARIATE to process the variable RESID from the output dataset.
- 6) Create a scatter plot the residuals on both the variable BONEGRP and on the predicted value (PRED). Include the vref option on the PROC PLOT.

In addition to the above be sure to include a comment with your name and appropriate titles. Feel free to explore as many additional instructions and options as you wish.

The dataset is given below. The datasets from the text come as CSV files (comma separated values). SAS will handle these nicely if you specify the delimiter as a comma (`dlim=','`) in the infile statement. The enclosure of the character variables in quotes is specified in SAS with the DSD option on the infile statement.

"OXYGEN" , "BONEGRP"	11.619999885559082 , "Bone7"
11.100000381469727 , "Bone1"	12.149999618530273 , "Bone7"
11.220000267028809 , "Bone1"	12.300000190734863 , "Bone7"
11.289999961853027 , "Bone1"	11.319999694824219 , "Bone8"
11.489999771118164 , "Bone1"	11.649999618530273 , "Bone8"
11.319999694824219 , "Bone2"	11.960000038146973 , "Bone8"
11.399999618530273 , "Bone2"	12.149999618530273 , "Bone8"
11.710000038146973 , "Bone2"	11.539999961853027 , "Bone9"
11.600000381469727 , "Bone3"	11.890000343322754 , "Bone9"
11.779999732971191 , "Bone3"	12.039999961853027 , "Bone9"
12.050000190734863 , "Bone3"	10.930000305175781 , "Bone10"
10.609999656677246 , "Bone4"	11.010000228881836 , "Bone10"
10.880000114440918 , "Bone4"	11.079999923706055 , "Bone10"
11.119999885559082 , "Bone4"	11.119999885559082 , "Bone10"
11.239999771118164 , "Bone4"	11.279999732971191 , "Bone10"
11.430000305175781 , "Bone4"	11.369999885559082 , "Bone10"
10.920000076293945 , "Bone5"	11.350000381469727 , "Bone11"
11.199999809265137 , "Bone5"	11.430000305175781 , "Bone11"
11.300000190734863 , "Bone5"	11.5 , "Bone11"
11.619999885559082 , "Bone5"	11.569999694824219 , "Bone11"
11.699999809265137 , "Bone5"	11.920000076293945 , "Bone11"
11.699999809265137 , "Bone6"	11.949999809265137 , "Bone12"
11.789999961853027 , "Bone6"	12.010000228881836 , "Bone12"
11.90999984741211 , "Bone6"	12.25 , "Bone12"
12.149999618530273 , "Bone6"	12.300000190734863 , "Bone12"
11.329999923706055 , "Bone7"	12.390000343322754 , "Bone12"
11.40999984741211 , "Bone7"	