

Example Oneway ANOVA Portland Cement Data

Obs	PORTLAND_CEMENT	OBS	TENSILE_STRENGTH
1	1	1	3129
2	1	2	2900
3	1	3	2865
4	1	4	2890
5	2	5	3200
6	2	6	3300
7	2	7	2975
8	2	8	3150
9	3	9	2800
10	3	10	2900
11	3	11	2995
12	3	12	3050
13	4	13	2600
14	4	14	2700
15	4	15	2600
16	4	16	2765

Example Oneway ANOVA Portland Cement Data

The GLM Procedure		
Class Level Information		
CLASS	Levels	Values
PORTLAND_CEMENT	4	1 2 3 4

Number of Observations Read	16
Number of Observations Used	16

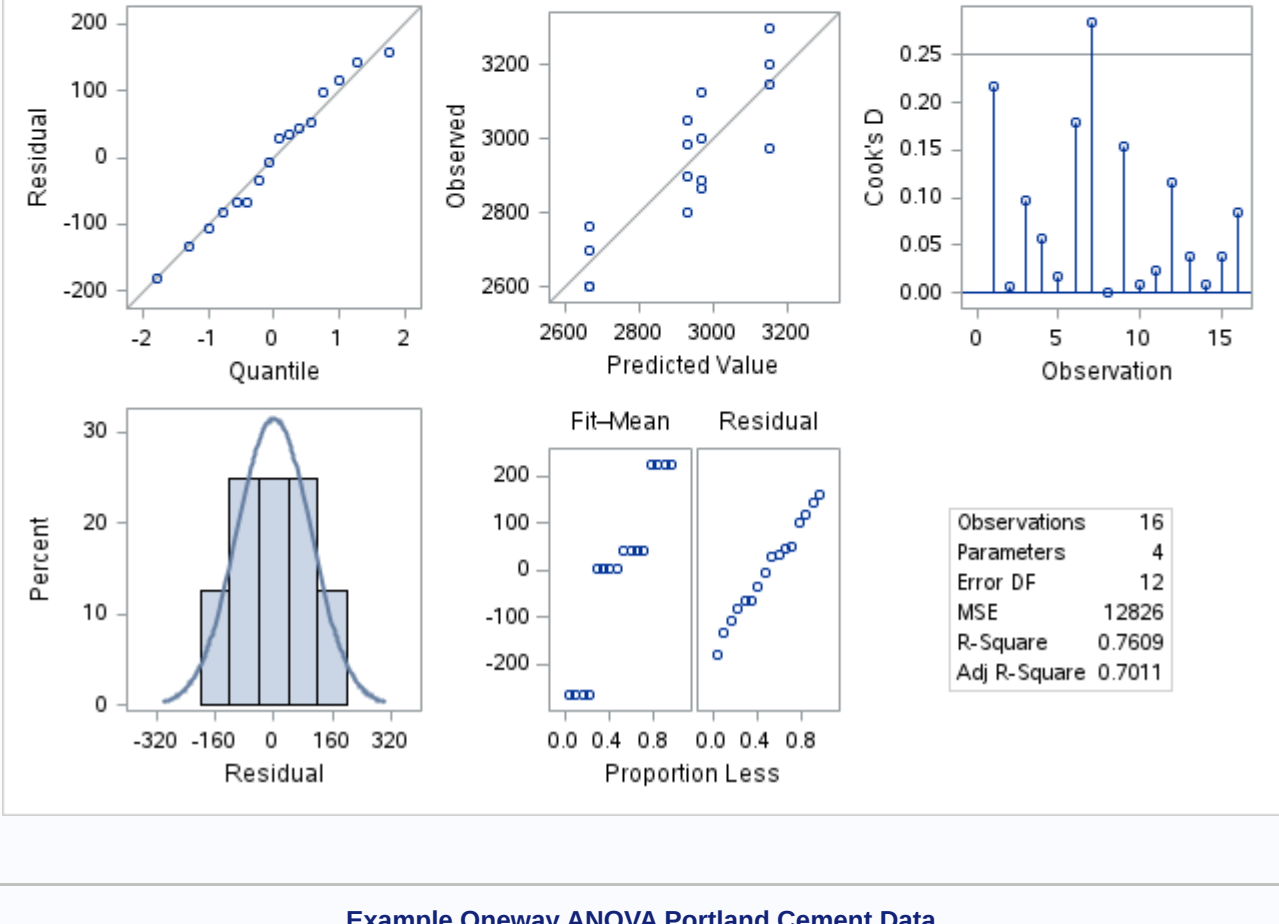
Example Oneway ANOVA Portland Cement Data

The GLM Procedure					
Dependent Variable: TENSILE_STRENGTH Tensile Strength (lbs/sq.inch)					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	489740.1875	163246.7292	12.73	0.0005
Error	12	153908.2500	12825.6875		
Corrected Total	15	643648.4375			

R-Square	Coeff Var	Root MSE	TENSILE_STRENGTH Mean
0.760881	3.862817	113.2506	2931.813

Source	DF	Type III SS	Mean Square	F Value	Pr > F
PORTLAND_CEMENT	3	489740.1875	163246.7292	12.73	0.0005

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PORTLAND_CEMENT	3	489740.1875	163246.7292	12.73	0.0005



Example Oneway ANOVA Portland Cement Data

The GLM Procedure					
Levene's Test for Homogeneity of TENSILE_STRENGTH Variance ANOVA of Squared Deviations from Group Means					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PORTLAND_CEMENT	3	1.695283	.56509488	0.52	0.6743
Error	12	1.2965E9	1.082E8		

Welch's ANOVA for TENSILE_STRENGTH		
Source	DF	F Value
PORTLAND_CEMENT	3.0000	13.05
Error	6.5400	

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The GLM Procedure				
Level of PORTLAND_CEMENT	N	Mean	Std Dev	
1	4	2971.00000	120.557040	
2	4	3156.25000	135.976407	
3	4	2933.75000	108.272419	
4	4	2666.25000	80.970674	

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The GLMMIX Procedure		
Model Information		
Data Set	WORK.PORTLAND_CEMENT_CRD	
Response Variable	TENSILE_STRENGTH	
Response Distribution	Gaussian	
Link Function	Identity	
Variance Function	Default	
Variance Matrix	Diagonal	
Estimation Technique	Restricted Maximum Likelihood	
Degrees of Freedom Method	Residual	

Class Level Information		
CLASS	Levels	Values
PORTLAND_CEMENT	4	1 2 3 4

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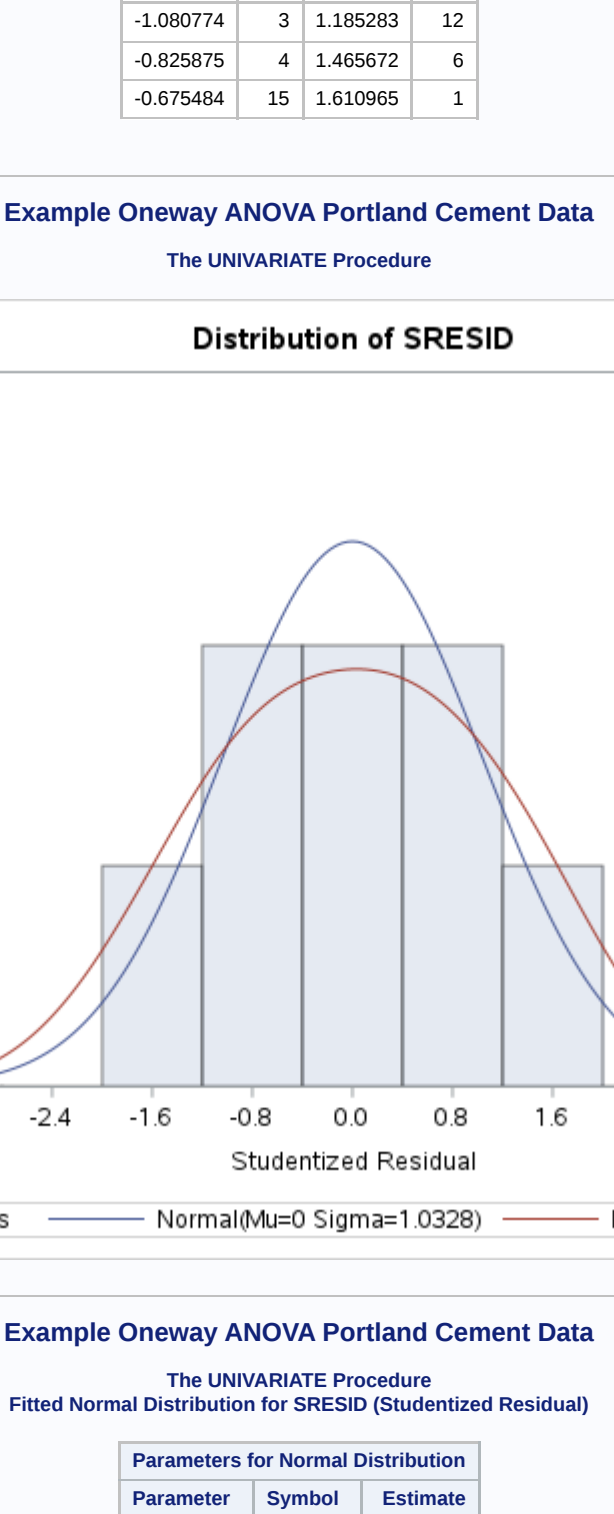
Dimensions	
Covariance Parameters	1
Columns in X	5
Columns in Z	0
Subjects (Blocks in V)	1
Max Obs per Subject	16

Optimization Information	
Optimization Technique	None
Parameters	5
Lower Boundaries	1
Upper Boundaries	0
Fixed Effects	Not Profiled

Fit Statistics	
-2 Res Log Likelihood	153.11
AIC (smaller is better)	163.11
AICC (smaller is better)	173.11
BIC (smaller is better)	165.53
CAIC (smaller is better)	170.53
HQIC (smaller is better)	162.21
Pearson Chi-Square	153908.3
Pearson Chi-Square / DF	12825.69

Type III Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
PORTLAND_CEMENT	3	12	12.73	0.0005

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The UNIVARIATE Procedure		
Fitted Normal Distribution for SRESID (Studentized Residual)		
Parameters for Normal Distribution		
Parameter	Symbol	Estimate
Mean	Mu	0
Std Dev	Sigma	1.032796

Goodness-of-Fit Tests for Normal Distribution			
Test	Statistic	p Value	
Kolmogorov-Smirnov	D 0.11845516	Pr > D	>0.150
Cramer-von Mises	W-Sq 0.02859538	Pr > W-Sq	>0.250
Anderson-Darling	A-Sq 0.18550316	Pr > A-Sq	>0.250

Quantiles for Normal Distribution		
Level	Quantile	
100% Max	1.610965	
99%	1.610965	
95%	1.610965	
90%	1.465672	
75% Q3	0.764699	
50% Median	0.115979	
25% Q1	-0.755679	
10%	-1.363713	
5%	-1.848022	
1%	-1.848022	
0% Min	-1.848022	

Extreme Observations			
Lowest	Highest		
Value	Obs	Value	Obs
-1.848022	7	0.522544	11
-1.363713	9	1.046693	10
-1.080774	3	1.183262	12
-0.825675	4	1.465672	6
-0.675484	15	1.610965	1

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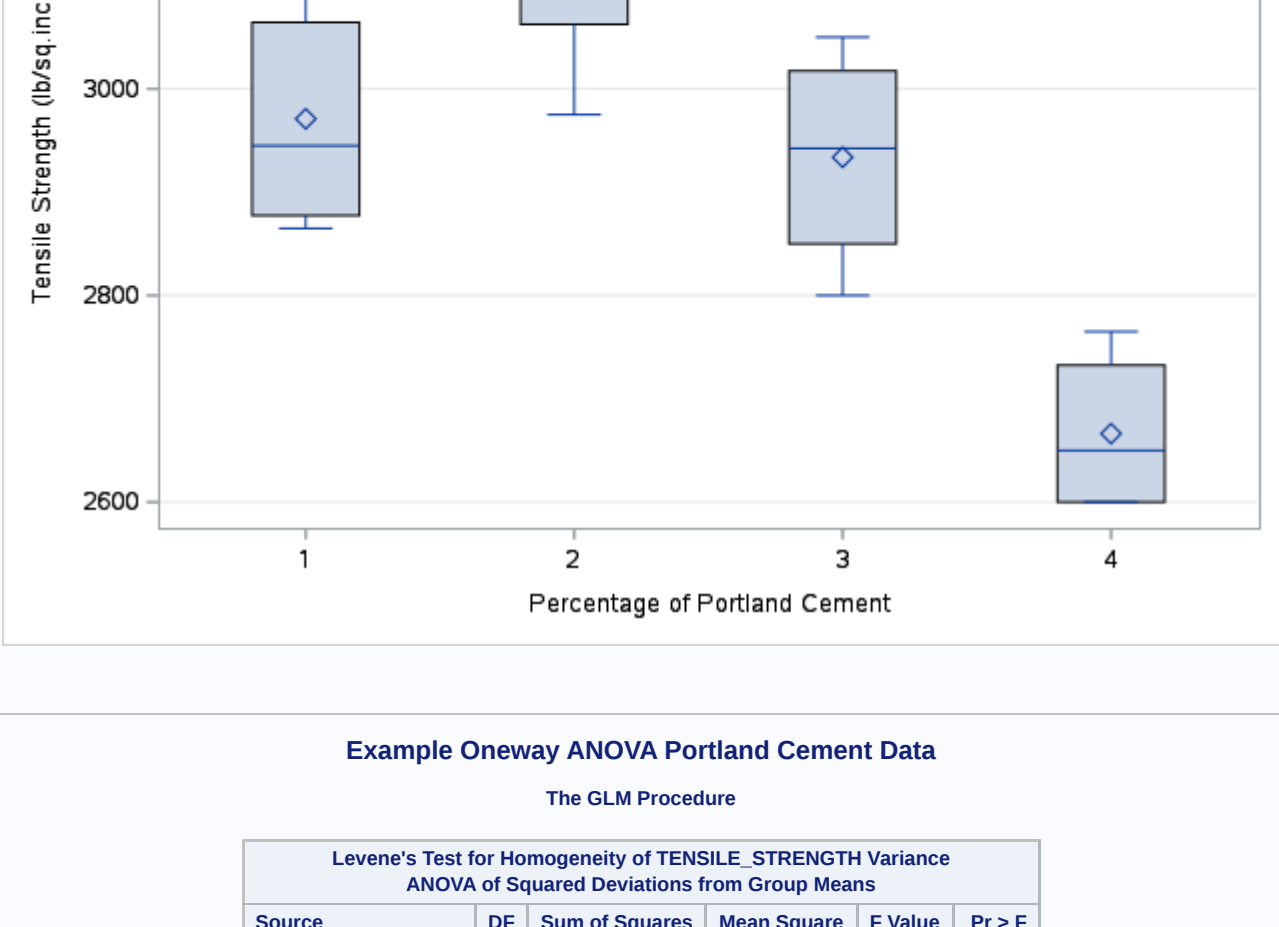
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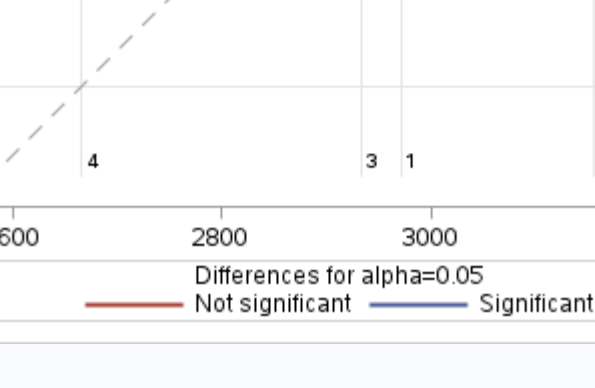
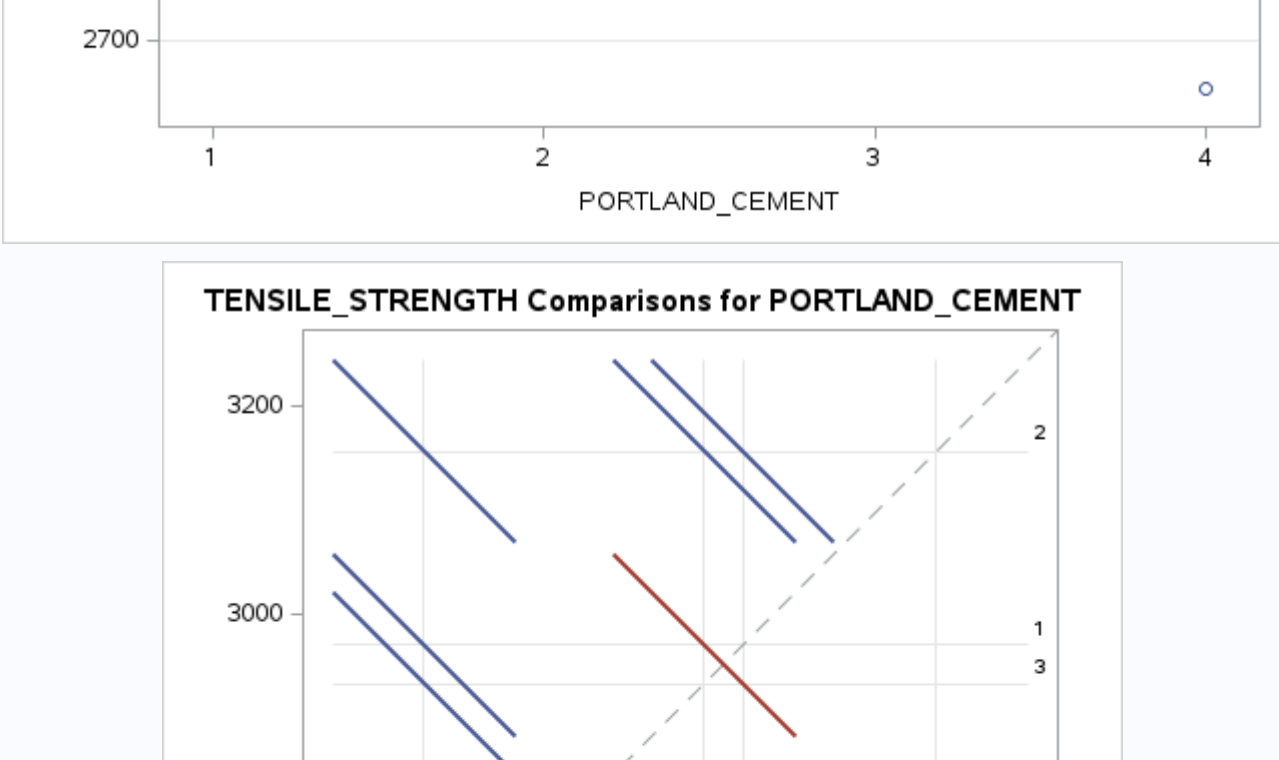
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The GLM Procedure				
Least Squares Means				
PORTLAND_CEMENT	TENSILE_STRENGTH LSMEAN	LSMEAN	Number	
1		2971.00000		1
2		3156.25000		2
3		2933.75000		3
4		2666.25000		4

Least Squares Means for effect PORTLAND_CEMENT Pr >  t  for H0: LSMEAN(i) = LSMEAN(j)				
Dependent Variable: TENSILE_STRENGTH				
i\j	1	2	3	4
1		0.0392	0.6501	0.0025
2	0.0392		0.0167	<.0001
3	0.6501	0.0167		0.0059
4	0.0025	<.0001	0.0059	



Note: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.