**Class LAB 2 codes**

**data** wafer;

Input order power rate @@;

cards;

04 160 575

05 160 542

08 160 530

13 160 539

14 160 570

06 180 565

09 180 593

16 180 590

17 180 579

18 180 610

01 200 600

07 200 651

10 200 610

19 200 637

20 200 629

02 220 725

03 220 700

11 220 715

12 220 685

15 220 710

;

**proc** **sort**;

by order;

**proc** **print**;

**run**;

**proc** **glm**;

class power;

model rate = power/p;

means power/HOVTEST=BARTLETT;

output out=wafer1 predicted=ypred residual=res;

**run**;

**proc** **Univariate** data=wafer1 plot normal;

var res;

**run**;

**proc** **plot** data=wafer1;

plot res\*ypred;

plot rate\*power;

plot res\*order;

**proc** **print**;

**run**;

**CLASS LAB 3**

**Data** Wafer;

Input order powerL rate @@;

cards;

04 160 575 05 160 542 08 160 530 13 160 539 14 160 570 06 180 565 09 180 593

16 180 590 17 180 579 18 180 610 01 200 600 07 200 651 10 200 610 19 200 637

20 200 629 02 220 725 03 220 700 11 220 715 12 220 685 15 220 710

;

**proc** **sort**

by order;

**run**;

**proc** **sort**;

by order;

**run**;

**proc** **glm** data=Wafer;

class powerL;

model rate=powerL;

estimate 'C1' powerL **1** -**1** **0** **0**;

estimate 'C1' powerL **1** -**1** **0** **0**;

estimate 'C2' powerL **1** **1** -**1** -**1**;

estimate 'C2' powerL **1** **1** -**1** -**1**;

estimate 'C3' powerL **0** **0** **1** -**1**;

estimate 'C3' powerL **0** **0** **1** -**1**;

**run**;

**proc** **glm** data=Wafer;

class powerL;

model rate =powerL;

means powerL/Bon CLDIFF ALPHA=**0.01**;

means powerL/Scheffe CLDIFF ALPHA=**0.01**;

means powerL/Tukey CLDIFF ALPHA=**0.01**;

means powerL/Tukey CIDIFF ALPHA=**0.05**;

means powerL/Duncan;

**run**;

**data** mill;

input loom strenght @@;

cards;

1 98 1 97 1 99 1 96

2 91 2 90 2 93 2 92

3 96 3 95 3 97 3 95

4 95 4 96 4 99 4 98

;

**proc** **glm** data=mill;

class loom;

model strenght=loom;

random loom/ test;

**run**;

**proc** **power**;

onewayanova

groupmeans = **550**| **598**| **598**| **646**

stddev = **80**

alpha = **0.05**

npergroup= **.**

power=**0.8**;

**run**;

\* to see how manym sample size affects power, we can use a list of sample size and ask proc powr to compute the power;

**proc** **power**;

onewayanova

groupmeans= **550**| **598**| **598**| **646**

stddev= **80**

alpha = **0.05**

npergroup = **2** to **10** by **1** **12** to **20** by **2** **25** to **50** by **5**

power = **.**;

**run**;

\* Creat a group for the data above to visually inspect the relationship between sample size and power;

**proc** **power**;

onewayanova

groupmeans = **550**| **598**| **598**| **646**

stddev = **80**

alpha = **0.05**

npergroup= **2** to **10** by **1** **12** to **20** by **2** **25** to **50** by **5**

power = **.**;

plot x=n min=**2** max=**50**;

**run**;

**proc** **power**;

onewayanova

groupmeans = **550**| **575**| **635**| **646**

stddev = **80**

alpha = **0.05**

npergroup = **2** to **10** by **1** **12** to **20** by **2** **25** to **50** by **5**

prower = **.**;

**run**;

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

**data** Vgraft;

input pressure resin yield @@;

cards;

8500 1 90.3 8500 2 89.2 8500 3 98.2 8500 4 93.9 8500 5 87.4 8500 6 97.9

8700 1 92.5 8700 2 89.5 8700 3 90.6 8700 4 94.7 8700 5 87.0 8700 6 95.8

8900 1 85.5 8900 2 90.5 8900 3 89.6 8900 4 86.2 8900 5 88.0 8900 6 93.4

**9100** **1** **82.5** **9100** **2** **89.5** **9100** **3** **85.6** **9100** **4** **87.4** **9100** **5** **78.9** **9100** **6** **90.7**

;

**proc** **glm** data=Vgraft;

class pressure resin;

model yield=pressure resin;

output out=V2 predicted=ypred residual=res;

means pressure resin;

means pressure/Bon cldiff;

means pressure/tuey cldiff;

means pressure/Scheffe cldiff;

**run**;

**proc** **plot** data=V2;

plot res\*ypred;

plot yield\*pressure;

plot yield\*resin;

plot res\*pressure;

plot res\*resin;

**run**;