

(ch7-2-exp7-5_HO.out)

```

OPTIONS LS=80 PS=66 MPRINT NODATE PAGENO=1 NOCENTER;
DM "LIST; CLEAR; LOG; CLEAR;";
*-----;
%LET file_n1 = exp7_5.txt;
FILENAME file1 URL "http://www.uvm.edu/~rsingle/stat231/data/kuehl/&file_n1";
*FILENAME file1 "&kuehl\&file_n1";

DATA a5;
  INFILE file1 FIRSTOBS=2 EXPANDTABS;
  INPUT conc day run glucose;
  C = conc; D = day; R = run;
  RUN;

PROC GLM DATA=a5;
  CLASS C D R;
  MODEL glucose = C D C*D R(D) C*R(D);
  RANDOM D C*D R(D) C*R(D) / TEST;
  RUN;

```

Class	Levels	Values
C	3	1 2 3
D	3	1 2 3
R	2	1 2

Dependent Variable: glucose

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	17	108908.2156	6406.3656	4460.91	<.0001
Error	18	25.8500	1.4361		
Corrected Total	35	108934.0656			

R-Square Coeff Var Root MSE glucose Mean
0.999763 1.024790 1.198379 116.9389

Source	DF	Type III SS	Mean Square	F Value	Pr > F
C	2	108263.6172	54131.8086	37693.3	<.0001
D	2	24.8772	12.4386	8.66	0.0023
C*D	4	176.3961	44.0990	30.71	<.0001
R(D)	3	263.1050	87.7017	61.07	<.0001
C*R(D)	6	180.2200	30.0367	20.92	<.0001

Source	Type III Expected Mean Square
C	$\text{Var}(\text{Error}) + 2 \text{Var}(C*R(D)) + 4 \text{Var}(C*D) + Q(C)$
D	$\text{Var}(\text{Error}) + 2 \text{Var}(C*R(D)) + 6 \text{Var}(R(D)) + 4 \text{Var}(C*D) + 12 \text{Var}(D)$
C*D	$\text{Var}(\text{Error}) + 2 \text{Var}(C*R(D)) + 4 \text{Var}(C*D)$
R(D)	$\text{Var}(\text{Error}) + 2 \text{Var}(C*R(D)) + 6 \text{Var}(R(D))$
C*R(D)	$\text{Var}(\text{Error}) + 2 \text{Var}(C*R(D))$

Source	DF	Type III SS	Mean Square	F Value	Pr > F
C	2	108264	54132	1227.51	<.0001
Error: MS(C*D)	4	176.396111	44.099028		

Source	DF	Type III SS	Mean Square	F Value	Pr > F
D	2	24.877222	12.438611	0.12	0.8888
Error	3.2358	329.289147	101.764028		
Error: MS(C*D) + MS(R(D)) - MS(C*R(D)) + 44E-17*MS(Error)					

Source	DF	Type III SS	Mean Square	F Value	Pr > F
C*D	4	176.396111	44.099028	1.47	0.3206
R(D)	3	263.105000	87.701667	2.92	0.1223
Error: MS(C*R(D))	6	180.220000	30.036667		

Source	DF	Type III SS	Mean Square	F Value	Pr > F
C*R(D)	6	180.220000	30.036667	20.92	<.0001
Error: MS(Error)	18	25.850000	1.436111		