LINEAR REGRESSION

STAT 615 (Baron)

```
DATA pulses;
INFILE pulse;
INPUT row pulse1 pulse2 ran smokes gender height weight activity;

PROC REG;                          /* Basic form of the procedure          */
MODEL weight=height; run;          /* The model is: response = predictor(s) */

PROC REG DATA=pulses ALPHA=0.10 LINEPRINTER;
                                   /* Lineprinter puts graphs into the same output file */
MODEL weight=height / CLB CLI CLM;
/* (1-α)-confidence intervals for parameters and mean values and prediction intervals */
TEST height=3;                     /* Test Ho: slope = 3 */
PLOT weight*height='*' PREDICTED.*height = 'o' / OVERLAY;
     /* Plot observed and predicted values by different symbols on the same picture. */
PLOT RESIDUAL.*height;             /* Plot residuals. */
RUN;                               /* End of Proc Reg. */
```

The REG Procedure
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	31592	31592	144.38	<.0001
Error	90	19692	218.80247		
Corrected Total	91	51284			

Root MSE	14.79197	R-Square	0.6160
Dependent Mean	145.15217	Adj R-Sq	0.6117

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	90% Confidence Limits	
Intercept	1	-204.74078	29.15972	-7.02	<.0001	-253.20310	-156.27845
height	1	5.09177	0.42375	12.02	<.0001	4.38751	5.79602

Output Statistics

Obs	Dependent Variable	Predicted Value	Std Error Mean Predict	90% CL Mean		90% CL Predict		Residual
1	140.0000	131.3159	1.9246	128.1172	134.5145	106.5249	156.1068	8.6841
2	145.0000	161.8665	2.0768	158.4149	165.3180	137.0416	186.6913	-16.8665
3	160.0000	169.5041	2.5467	165.2716	173.7366	144.5587	194.4495	-9.5041
.	.	.	.	.	.	.	.	.
91	150.0000	136.4076	1.7053	133.5735	139.2417	111.6611	161.1541	13.5924
92	108.0000	109.6758	3.3309	104.1400	115.2117	84.4766	134.8751	-1.6758

Sum of Residuals	0
Sum of Squared Residuals	19692
Predicted Residual SS (PRESS)	20624