Exercise 4k: Using PC SAS to determine the "best" model for predicting the progesterone concentration in cows' blood.

Objectives:

1. To apply the procedures learned in class and Exercise 3 to the analysis of experimental data.
2. To determine the "best" model to predict the effect of shade and time on the progesterone concentration in cows' blood.

Background:

Cows were kept under two conditions, shaded and unshaded. The progesterone level in their blood was determined every eight hours for a period of two days. The progesterone concentration would reflect the level of stress of the animals. These data were obtained from D. Vincent.

The data should be plotted before proceeding with model development as this permits you to see the trend of the data.

Procedure:

1. The data set is in an Excel file on the class lab web page.
2. It will be helpful to create some additional variables to use in model development. Equations which describe the relationships can be linear, curvilinear, or exponential, depending on how the variables are expressed. For this exercise, you might try the squared and square root terms. These terms can be created using Data Transform.
3. You can add other variables that you believe are needed to give you the analysis that you want.
4. You can use Regression and Stepwise or other options to develop your models.
5. Next Wednesday please turn in the printouts of the following items for the models that you considered as potential models for this relationship.

1. Analysis of variance and parameter estimates
2. Plot of the residuals for the final selected model
3. A summary of the regression statistics (SSE, MSE, Rsq, Adj-Rsq, PRESS)
4. The prediction equation for the model which you consider the "best" model
5. An explanation of why you selected that particular model over the other models.

References:


H.M. Zaleski/J.A. Silva/J.L. Brewbaker