

## Accounting for Unequal Variances

In the previous demonstration you saw that the constant variance assumption was not met or was violated. You need to account for the non-constant variances. Let's examine the model equation. How is this mathematical equation different from the previous one? The model equation is the same, but notice that the subscript on the variance term indicates that the variance is no longer constant and varies across levels of drug. This, in turn, results in four variance estimates instead of one.

PROC GLM performs statistical analyses for general linear models and assumes independence, normality, and constant variance. However, this procedure has only one tool to account for nonconstant variance: Welch's ANOVA for one-way analysis of variance.

On the other hand, PROC GLIMMIX and PROC GENMOD provide a more general approach and do not require the assumptions of normality, independence, or constant variance. The only assumption is that the response variable belongs to the exponential family of distributions, which includes the normal, gamma, binomial, Poisson, negative binomial, and several other distributions. Next, we will discuss the general form of PROC GLIMMIX and how it is used to model the nonconstant variance in the **pressure2** data set.