Using PROC GLIMMIX to Fit a Gamma Regression Model

You know that you can use PROC GENMOD to fit generalized linear models to data in which the response variable is not necessarily normally distributed.

Now you use PROC GLIMMIX to fit generalized linear models for nonnormal responses, including: logistic regression models for binary outcomes, Poisson or negative binomial regression models for counts of rare events, and a gamma regression model for continuous skewed, positive values.

Recall that earlier you used PROC GLIMMIX to account for nonconstant variances in a normal distribution. In the next lesson, you'll also learn to use PROC GLIMMIX to fit mixed models.

Let's briefly review the syntax for PROC GLIMMIX, focusing on the statements needed to fit a gamma regression model. The MODEL statement is required and specifies a single response variable and fixed effects. You can specify the response variable by using either the response syntax or the events/trials syntax.

The DIST= option in the MODEL statement identifies the distribution that you want to model. If you do not specify a distribution, PROC GLIMMIX defaults to the normal distribution for continuous response variables and to the multinomial distribution for classification or character variables. If you use the events/trial syntax to specify the response variable, PROC GLIMMIX defaults to the binomial distribution.

You use the LINK= option in the MODEL statement to specify the link function. You can define your own link function through programming statements. For gamma regression, you specify DIST=GAMMA and LINK=log.
