

1. Write a general linear model for the following tests. Use Y for response variable, X1 (and X2 if necessary) for nominal scale (classification) variables, and Z1 (Z2 if necessary) for ratio scale (regression) variables.

One-way ANOVA Y =  $\beta_o$  +  $\beta_{X1}$  \* X1 \_\_\_\_\_

Multiple regression S =  $\beta_o$  +  $\beta_Z$  \* Z +  $\beta_{Z1}$  \* Z1 +  $\beta_{Z1*Z2}$  \* Z1 \* Z2 \_\_\_\_\_

2. Complete an ANOVA table for a regression where the F-ratio is 6, the MSerror is 2, and there were 8 observations of the response variable.

Source	df	SS	MS	F
regression	<u>1</u>	<u>12</u>	<u>12</u>	6
error	<u>6</u>	<u>12</u>	2	
Total	<u>7</u>	<u>24</u>		

3. Review question 21 (page 339) from Rosner (1995). Write a general linear model to examine whether arterial plasma epinephrine concentrations (nanograms per milliliter) in 10 laboratory animals varies with type of anesthesia (A, B, or C). All 3 types were applied to each animal, in random order. Be sure to assign a name and symbol to all response and explanatory variables

[APE] Arterial Plasma Epinephrine, as a concentration  
Atype Anesthesia level  
B Block (experimental unit = animal)

$$APE = \beta_o + \beta_{Atype} * Atype + \beta_B * B + error$$