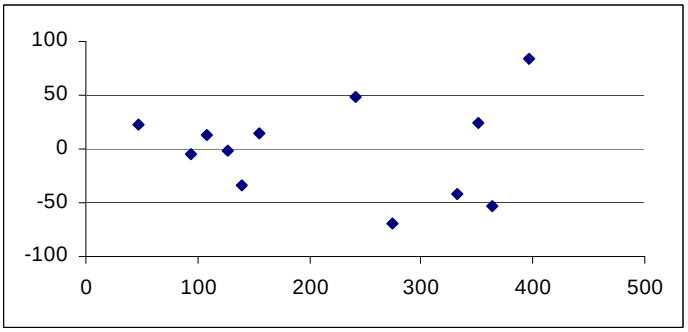
Biology 4605 / 7220 Name _____
Quiz #5a 16 October 2015

W.W. Daniel (*Biostatistics*. John Wiley, 1995 p 408) gives data for mercury in the blood (Hg_{blood} = ng/g) and mercury intake (Hg_{intake} = μ g Hg /day) from fish in 12 people.

1. Using the symbols provided, write a general linear model for the relation of mercury in the blood to mercury intake, as estimated by linear regression. [5]



2. Here is a plot of residuals versus fitted values for regression analysis of the mercury data. Is a straight line model appropriate for this data ?

_____[1]

Why or why not? [2]

Are the residuals homogeneous? _____[1]

Why or why not? [2]

Comment on the use of this example in a chapter on regression in a text book. [2]

3. This textbook example asks for the linear regression equation and the F-ratio to test the null hypothesis of no relation. Obtain the F-ratio by completing the ANOVA table [6]

SOURCE	DF	SS	MS	F
Hg_{intake}	___	_____	_____	_____
Error	___	21500	_____	
Total	11	183892		

4. How would you obtain the p-value for this F-ratio? [1]