ttacked by boll weevils in 16 plots each treate cide. The experiment was repeated in 5 differences	ed with a different rent fields for a tot	type of arsenicated and state of 80 plots.	ıl Are
e variables in a tabular format, as in the box.	[3]		
scale = nominal, ordinal, or cardinal cardinal = interval <u>or</u> ratio scale.	A. name s	ymbol scale	
to explanatory variable(s) and interaction ter List degrees of freedom beneath each term in	ms (if appropriate) a the model,		
=		3 +	[3] [4]
he name of the analysis, from the following l	ist.		[1]
three-way ANOVA paired comparisons, randomized blocks, hierarchical (nested) ANOVA regression, multiple regression,		xplanatory varia	ble)
•	•	ements per plot.	
=		3 +	[4] [5]
	ttacked by boll weevils in 16 plots each treate cide. The experiment was repeated in 5 differ insecticides more effective than others, after of evariables in a tabular format, as in the box. scale = nominal, ordinal, or cardinal cardinal = interval or ratio scale. the symbols, write a general linear model relate to explanatory variable(s) and interaction ter List degrees of freedom beneath each term in Assume 1 measure of flower bud % p =	tacked by boll weevils in 16 plots each treated with a different cide. The experiment was repeated in 5 different fields for a tot insecticides more effective than others, after controlling for different variables in a tabular format, as in the box. [3] scale = nominal, ordinal, or cardinal cardinal = interval or ratio scale. A. name sequence in a proper name of the analysis, and interaction terms (if appropriate List degrees of freedom beneath each term in the model, Assume 1 measure of flower bud % per plot. — =	scale = nominal, ordinal, or cardinal cardinal = interval or ratio scale. A. name symbol scale the symbols, write a general linear model relating the response variable to explanatory variable(s) and interaction terms (if appropriate). List degrees of freedom beneath each term in the model, Assume 1 measure of flower bud % per plot. =

Biology 4605 / 7220 Exam #2b Name ______ 1 November 2019

2. J. Neter, W. Wasserman, and M.H. Kutner 1985 <i>Applied Linear Statistical Models</i> reported muscle mass in 8 women, in the 43-58 year age range. Does muscle mass M (kg) decrease with age A in this range? (H_o testing) The question can also be phrased as: How good is the evidence for a decrease in muscle mass with age in this range?	
Using the symbols above write a GLM to address this question.	
=	[2]
Show units below each symbol in your GLM.	[5]
Write the null hypothesis.	
H_o	[1]
Complete the ANOVA table	[6]
age Source df SS MS F p 43-58 regr 70.64 0.02 residual 41.44 1.44 total 7	
Calculate the explained variance $R^2 =$	[1]
Calculate the likelihood ratio. $LR =$	[1]
Declare a decision about H_o against a 5% tolerance for statistical significance.	[1]
Choose one of the following methods of reporting statistical conclusions. (circle it). Report the likelihood ratio as relative evidence: "change with age was () times more likely than no change" Report Type I error with a decision. "the null hypothesis was (or was not) rejected at $\alpha = 5\%$."	[1]
Give a reason for your choice.	[2]

Define variables in a tabular format, as in the box. A. name symbol scale	
scale = nominal, ordinal, or cardinal cardinal = interval <u>or</u> ratio scale.	
Using the symbols, write a general linear model relating the response variable to explanatory variables and interaction term.	
=	[4]
Assume 2 measures of breaking strength and one measure of pH per plot. Show how to calculate the total degrees of freedom.	[1]
Complete the source column. Complete the df column of the ANOVA table.	[1] [5]
State the name of the analysis, from the following	5
list. t-test, one-way ANOVA, two-way ANOV three-way ANOVA	A,

3. Cochran and Cox (1957 Experimental Designs Table 4.4) reported the breaking

strength of cotton fibers from 5 blocks, each with 5 plots treated with a different level of