

**PSYC 240: Statistics in Psychology**  
**ASSIGNMENT 8: CORRELATION & REGRESSION**

**Short Essay Question (20 points):** Please provide a typewritten answer to the following essay question:

- Describe the potential impact of nonlinearity on the correlation coefficient. In other words, would the presence of outliers or curvilinearity in a particular data set increase or decrease a correlation? Be sure to explain why by giving examples.

**Problem-Based Questions (40 pts. each):** Please show all work and clearly identify the final answer for each of the following questions.

*Study:* A researcher was interested in comparing the amount of statistics anxiety for college students at two time points during a semester. A random sample of 7 students rated their own levels of statistics anxiety on a 9-Point Scale (1 = not anxious, 9 = very anxious). The results are as follows:

Time 1 (First Week): 6, 7, 9, 3, 5, 6, 2  
 Time 2 (Final Week): 3, 4, 9, 1, 5, 6, 3

- For the study described above, obtain the sum of cross-products, covariance, and correlation for the 2 variables.
- Use the following output to determine whether each predictor is significant. For Sig., simply indicate  $p > .05$  or  $p < .05$ .
  - Calculate the predicted score for someone who studied 6 hours and scored a 4 on the Anxiety scale.
  - Calculate the predicted z-score for someone who was .5 SDs above the mean on Hours and 1 SD below the mean on Anxiety.

ANOVA<sup>b</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2509.507	2	1254.753	10.348	.000 <sup>a</sup>
	Residual	5941.570	49	121.257		
	Total	8451.077	51			

- a. Predictors: (Constant), Anxiety, Hours  
 b. Dependent Variable: Grade

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	63.980	3.568			
	Hours	1.452	.690	.324		
	Anxiety	2.813	1.550	.279		

a. Dependent Variable: Grade