

Correlation Exercise Answers

1. Hypothesis: There is a relationship between academic self-efficacy and test anxiety. Data to test this hypotheses are provided below.

Table 1. Correlations and Descriptive Statistics for Academic Self-efficacy and Test Anxiety

	1	2
1. Academic Self-efficacy	---	
2. Test Anxiety	-.67	---
M	7.00	7.00
SD	1.73	1.29

* $p < .05$.

$n = 7$

Although a moderately strong, negative correlation of $-.67$ was obtained, the correlation is not statistically significant, at the $.05$ level of significance, between academic self-efficacy and test anxiety. Results from this small sample suggest academic self-efficacy and test anxiety are unrelated.

2. Do income in dollars per year and size of house in square footage correlate with happiness?

Table 2. Correlations and Descriptive Statistics for Income, Size of House, and Happiness

	1	2	3
1. Income	---		
2. Size of House	.96*	---	
3. Happiness	-.44	-.54	---
M	59,691.67	2,660.50	6.08
SD	68,292.56	1,857.31	1.78

* $p < .05$.

$n = 12$

Of interest is whether house size or income is associated with one's level of happiness. Correlations among these variables show that neither house size nor income are statistically related to level of happiness for participants in this sample at the $.05$ level. This finding indicates that one's level of happiness seems to be unrelated to either one's income level or one's house size. There is, however, a statistically significant association between income and house size—the greater one's income, the larger one's house, on average.

3. IGUANA: You want to determine whether there is a relationship between female iguana body weight and the number of eggs they produce.

Table 3. Correlations and Descriptive Statistics for Iguana weight and number of egg produced

	Weight	Eggs
Weight	---	
Eggs	.95*	---
M	1.37	45.22
SD	0.32	10.86

* $p < .05$.

$n = 9$

There is a statistically significant and strong association between the weight of a female iguana and the number of eggs she produces. The greater the female iguana's weight, the more eggs she is likely to lay.

4. DOLL-ECOL: Richard Doll studied the relationship between smoking and lung cancer in many different ways. In one of his earliest investigations, he compiled the information on per capita cigarette consumption in 1930 and lung cancer 20 years later in 1950 for the countries shown below. Is there a relationship between cigarette consumption per capita and mortality as a result of lung cancer?

Table 4. Correlations and Descriptive Statistics for Cigarette Consumption and Mortality

	Cigarette Consumption	Mortality
Cigarette Consumption	---	
Mortality	.74*	---
M	603.64	20.55
SD	378.45	11.72

* $p < .05$.

$n = 11$

Doll's data show a statistically significant association between cigarette consumption per capita and lung cancer mortality rates across 11 countries sampled. The greater the consumption of cigarettes per capita, the greater the lung cancer mortality rate.