

Homework II  
 Statistics Review (Due Wed 1/21)

Table 1 Postponement and Math/Statistics Anxiety

(X) Number of Terms Taking Statistics Has Been Postponed	(Y) Level of Math/Statistics Anxiety
1	3
2	3
2	3
3	2
3	4
2	4
3	5
3	5
4	5
4	7

1. The data set ( $X$ ) found in Table 1 represents the number of school terms 10 social science majors have put off taking a required statistics class. The second data set,  $Y$ , is Each student's measured level of math/statistics anxiety. Use these data sets to complete the following exercises on algebraic order and summation notation.

- a.  $E X$                       b.  $E Y$
- c.  $(E X)^2$                   d.  $(E Y)^2$
- e.  $E X^2$                       f.  $E Y^2$
- g.  $E X^2 ! 1$                   h.  $(E Y)^2 ! 1$
- i.  $E (X-1)$                   j.  $E (Y-1)^2$
- k.  $(E X)(E Y)$

2. For each of the following variables, define what level of measurement they are: nominal, ordinal, interval-ratio.

- a. age                              b. hair color                      c. an attitudinal scale (eg. On the following scale: 1 2 3 4 5)
- d. height                              e. Number of beers consumed on Friday night
- f. religion                              g. your name                      h. gender                              i. income

3. Now determine if these same variables are discrete or continuous.

4. Calculate the Mean, Median, and Mode, for X and Y.
5. Calculate the Population Variance, Population Standard Deviation, Sample Variance, and Sample Standard Deviation for X and Y.
6. a. Calculate the Pearson's  $r$  between X and Y.
  - b. Is it significant? At what level?
  - c. Report your answer in APA format.
  - d. Compute the Coefficient of Determination. What does this say about the amount of statistics anxiety that is predicted by knowing how long someone has put off taking statistics courses? How much variability in Statistics anxiety is unaccounted for?
7. A researcher studied the brands of beer that 100 students reported consuming on a typical Friday night. The results are reported below. Assuming that each outcome had an equal probability occurring, calculate the goodness of fit chi-square for this data. Report the results in APA format. Is it significant? What does it tell us?

Natural Light = 40  
 Bud Light = 30  
 Guinness = 5  
 Milwaukee's Best = 10  
 South Paw = 15

8. A researcher wanted to know whether watching South Park (yes vs. no) and having nightmares involving genetically engineered talking towels were related. She interviewed 100 students. The results are presented bellow. Calculate the Pearson's Chi-Squared statistics for this data. Report the results in APA format. Is it significant? What does this tell us?

		<u>Watch South Park</u>	
		Yes	No
<u>Towel</u> <u>Nightmares</u>	Yes	30	20
	No	23	27