



# Intro to Stats

## Correlations

### Correlation coefficient

- ▶ Captures how the value of one variable changes when the value of the other changes
- ▶ Ranges from  $-1$  to  $+1$
- ▶ A Pearson correlation is based on continuous variables
  
- ▶ Important to remember this is a relationship for a group, not each person
- ▶ Reflects the amount of variability shared by two variables

## Computations

$$r_{xy} = \frac{n \Sigma XY - \Sigma X \Sigma Y}{\sqrt{[n \Sigma X^2 - (\Sigma X)^2][n \Sigma Y^2 - (\Sigma Y)^2]}}$$

- ▶  $r_{xy}$  = correlation coefficient between x & y
- ▶ n = size of sample
- ▶ X = score on X variable
- ▶ Y = score on Y variable

## Interpretations

.80 to 1.0	Very strong
.60 to .80	Strong
.40 to .60	Moderate
.20 to .40	Weak
.00 to .20	Weak/ None

## Interpretations

- ▶ Coefficient of Determination
  - Percentage of variance in one variable that is accounted for by variance in the other
- ▶ Square the correlation coefficient
  
- ▶ If  $r = .70$   
 $r^2 = .49$   
49% of variance in one is explained by variance in other

## Food for thought

- ▶ What about items in a scale that are intended to measure the same construct?