**Correlation Tests**

Statistics for the Behavioral Sciences

•Why correlations?

•Types of IV’s in *z, t,* and *F*-tests

•Lose variability among individuals

•Relationship between variables

•Can’t reasonably assign

•Exploring research opportunities

•Only interested in external validity

**External validity**

•Generalize from results

•To other people, situations, locations

•Internal validity (conclusiveness)

•Establishment of causal relationships

•Minimize other possible explanations

•Balance external and internal validity

**Correlation basics**

•Correlation as a research method design

•If not true experimental design, then it is a correlational design

•Even when using a *t*- or *F-*test

•Ex. Gender studies – can’t randomly assign

**Correlation basics**

•Correlation as a statistical test

•Measured with correlation coefficient

**Correlation coefficient**

•Is either positive or negative

•Always falls between -1.00 and 1.00

•Strength measured by magnitude, not sign

**Correlation**

•Positive correlation

**Correlation**

•Negative correlation

**Correlation basics**

•Correlation as not causal

**Correlation**

•Correlation coefficient

•No true IV nor random assignment

•More absences cause lower grades

•Lower grades cause more absences

•Both are true

•Neither are true

•Course load may cause more absences and lower grades

**Correlation basics**

•Correlation distribution

**Correlation tests**

•Pearson Product Moment Correlation

**Pearson correlation assumptions**

• Both variables are scale

• Participants are randomly selected

• Populations are normally distributed

• Variables are linearly related

• Homoscedasticity (equal variance)

**Populations on distribution of scores**

• Verify normality of variables

• Look at measures of central tendency

• Frequency polygon

• Skewness statistic

**Normal Distribution**

•Check normality by skewness stat and table

•Assume normal if between lower and upper limit