

## Descriptive Stats

Central Tendency:  
Mean, Median, Mode  
Variability:  
Range, Interquartile Range, Standard Deviation, Variance  
Graphs of data:  
histogram, bar graph, frequency polygon, line graph

## Inferential Statistics (Quantitative Data)

Are you looking for a relation between two variables (correlation - there's an association between them) or if a change in one leads to a change in the other (manipulation)?

## Proportions

Percentage of people above or below a certain number  
Z scores (Normal distribution table)

Correlation

Manipulation

Are you trying to predict and outcome, or only see if there is a relation?

Relation

Prediction

Identify your independent variable, levels of treatment, and dependent variable. How many groups are there?

1

2 or more

**1 sample t-test**  
(df = N - 1)

Are people within the groups connected in some way?  
(e.g., person 1 in group 1 matched to person 1 in group 2; same person measured over time)?

No

Yes

### Correlational analysis

- Size, direction, explanation
- t test of r vs. 0  
(df = N - 2)

### Regression

How many groups?

3 or more

How many groups?

2

**1 way ANOVA**

(df = df<sub>Between</sub>,  
df<sub>within</sub>)

2

3 or more

**Independent samples t-test**  
(df = N - 2)

**Dependent (correlated) samples t-test**  
(df = N - 1; use difference)

**Repeated Measures ANOVA**  
(Focus on effect of time/treatment)

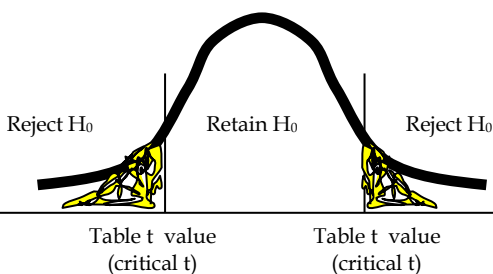
### Chi Square

(table of counts - observed vs. expected values)

Do you have Qualitative data?

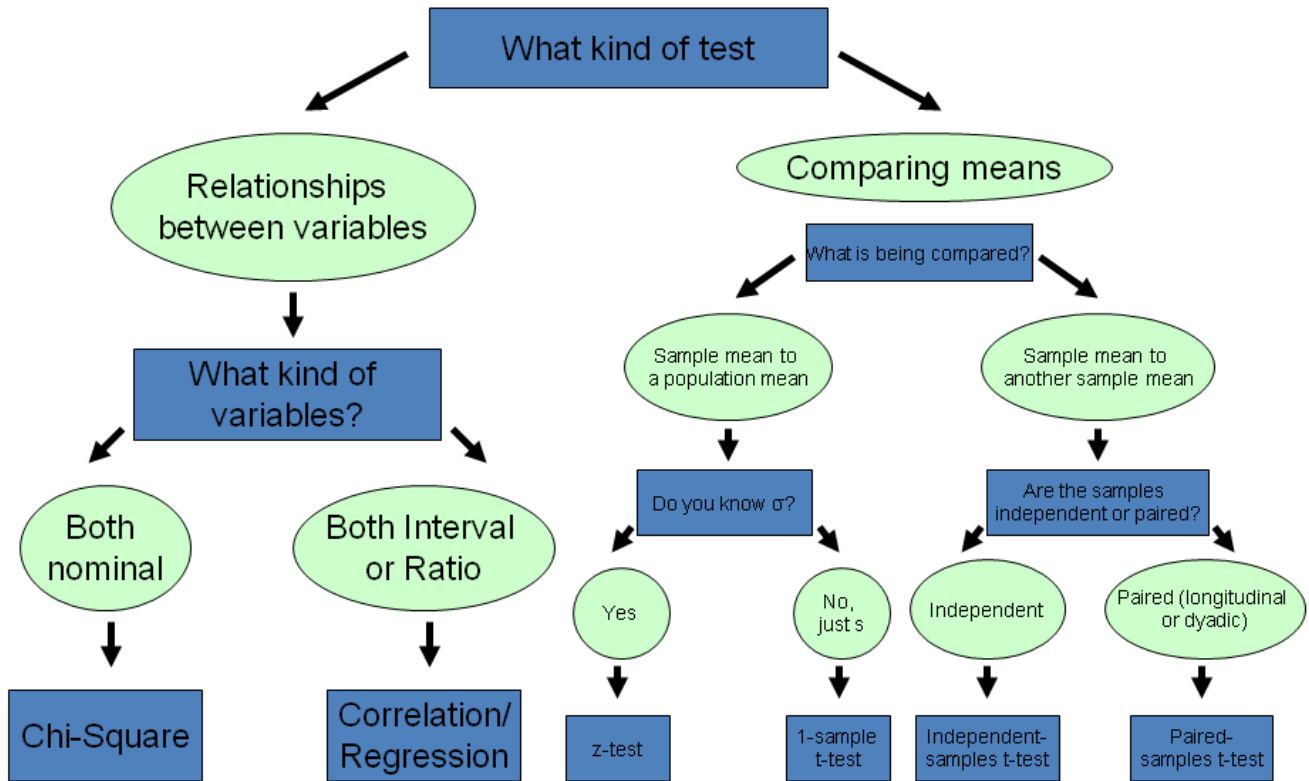
### Steps to Significance Testing:

1. Define H<sub>0</sub> and H<sub>a</sub>.
2. Pick your test, α, 1-tailed vs. 2-tailed, df. Find critical value in table.
3. Draw your diagram. Mark the rejection regions.
4. Calculate your test statistics (t or F)
5. Make a decision (retain or reject).
6. Write out your conclusion, in words and statistics (use your hypotheses).



**A Statistical Decision Tree**

# Decision Tree



See also: <http://bama.ua.edu/~jleeper/627/choosestat.html>