Understand when to use each test.

* Numerical data
  + One variable
    - One population (one sample)
      * One sample t test
        + H0: U1 = U0
        + T-statistic
        + T=xbar – U0 / SE
    - Two populations
      * Paired observation
        + Paired t-test

X1 X2

H0: U1-2 = 0

T-statistic

* + - * Unpaired observation
        + 2 sample t test

H0: U1-U2 = 0

T-statistic

* + - 3+ populations
      * ANOVA
        + H0: U1=U2=U3
        + F-Statistic
        + \*If reject H0 follow up with pairwise comparisons
        + Look at bonfironi correction

p/k, k=(k-1)k/2

* + Two variable
    - Correlation
      * H0: p=0
      * T statistic
      * Not on test
* Categorical data
  + One variable
    - Binary 0/1
      * One population
        + Single proportion Z test
        + H0: p1 = p0
        + Z statistic
      * Two population
        + Two proportion Z test
        + H0: p1=p2
        + Z statistic
    - 3 or more levels
      * X2 Goodness of Fit
        + H0: Consistent with what we would expect
        + X2 statistic
        + Know what it means to have a large or small statistic
  + Two variables
    - X2 test of independence
      * H0: variable are independent
      * X2 statistic
* Numerical Outcome \* Numerical/Categorical predictors
  + One predictor
    - Simple linear regression
      * Yhat = b0 + b1x
      * H0: B1=0
      * T-statistic
      * R2 or R2adj
  + Two or more predictors
    - Multiple linear regression
      * Yhat = b0 + b1x + b2x ….
      * T-statistic
      * R2adj