Hypothesis Testing

- Means, diff in Means, proportions, diff in proportions
- Setting up H0 and HA corresponding to the context
- Checking conditions
- How to calculate test-stats for each of these cases
- Understanding parts of the test-statistic
    - measuring difference between data and null value, measured by standard error
- P-values from R output
- P-value interpretations / definitions in context
- Answering research questions / conclusions using p-value
- Strength of Evidence Approach (conclusions)
- Decision Making approach
    - What do we do to see if p-values are significant (less than alpha?)
    - Type-I and Type-II error definitions and describing these in context
    - issues with this approach

Chi^2 Tests

- Goodness of Fit
    - Testing equality of proportions
    - How to calculate test-stat
    - df = k-1
    - Picking correct p-value from R output
    - answering conclusion in context
- Independence Test
    - Testing if 2 categorical variables are independent
    - same formula for test-stat
    - df = (k-1)(m-1)
    - Picking correct p-value from R output
    - answering conclusions in context

ANOVA

- intuitive descriptions of SSG, SSE, SST, MSE, MSG, F
- what these terms represent in terms of variability in a graph
- Null and alternative hypothesis
- Filling out an ANOVA table using info (example will be given in practice Wed review)
- Research question conclusions in context using p-value

ANOVA: Linear Regression:

- writing regression equation using R output
- slope and intercept interpretations
- prediction using the regression equation
- residual calculation
- overall model fit using F-stat and p-value from ANOVA table
- individual slope/intercept tests using t-stat and p-value from ANOVA table

- residual analysis (added on Monday)