Students can

From First Half of the Quarter

- differentiate categorical and numerical variables and calculate corresponding statistics such as proportion and mean.
- understand the statistics mean, proportion, standard deviation and variance
- identify the sample and population in a given news article, research study excerpt etc.
- make meaningful conclusions considering sampling design and study design.
- identify response, explanatory, and (potential) confounding variables.

Weeks 6 - 8 Statistical Inference

- write hypotheses using words (e.g. pink cows)
- write hypotheses using notation for single proportion, difference of two proportions, single mean, difference of two means
- state the sampling distribution for H_0.
- decide whether data are paired, i.e. differentiate single mean vs. difference of two means.
- test hypotheses using notation for single proportion, difference of two proportions, single mean, difference of two means
- construct confidence intervals for single proportion, difference of two proportions, single mean, difference of two means
- understand different components of confidence interval construction stage (e.g. margin of error or standard error) and how each of these components contribute to confidence interval construction
- state the meaning of confidence intervals
- check conditions for using Central Limit Theorem for single proportion, difference of two proportions, single mean, difference of two means
- compare z (standard normal) and t distributions and write R functions for these distribution (e.g. `pnorm()`).

Week 9 Linear Regression

- write the equation of the line using notation.
- match the R output of `lm` results with the corresponding notation (e.g. b_0)
- interpret the slope and interpret coefficients' estimates.
- write hypotheses for the slope and intercept coefficients and test these hypotheses based on R output of `lm` results utilizing p values.
- interpret confidence intervals for slope and intercept coefficients.
- when given appropriate information (e.g. plots) can check for conditions of linear regression.

Go over problems

We solved the following exercises from OpenIntro. It might be worth going over them.

6.8
6.22
6.24
7.7
7.18
7.20
7.24
7.26