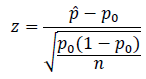
6.1 Hypothesis Testing (pg1)

* Statistically significant: when sample results are not consistent with expected sampling variability
* If something is statistically significant, it may be that there is an effect OR that the assumptions about the population to define sampling distribution were incorrect
* Just because it is statistically significant does not mean it is real or meaningful
* Steps to hypothesis testing

1. Identify Research Question, Population, and Parameter of Interest
2. Establish null and alternative hypothesis
3. Identify type of hypothesis test and check conditions
   1. Response Variable Categorical or Quantitative?
   2. Number of Variables?
   3. Number of categories?
4. Calculate test statistic
   1. General Form:
   2. # of std errors a test stat is from the null value
5. Identify null dist and calculate p-value
   1. P value is probability of observing our stat or something more extreme under null Hypo
   2. Also is the proportion of the null distribution that is more extreme than the test statistic
6. Make a decision about null hypo
7. State conclusion in context of alternative hypo

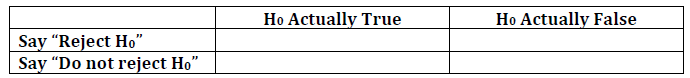
6.2 Hypo Test for Pop. Proportion (pg9)

* Categorical Response variable w/no exp. Variable
* Large Sample Z – Test
* Conditions:
  + Random Sample, Large (np>=10 and n(1-p)>=10
* Test Stat:
* Pick Ha before you see data

6.3 Hypo Test for a Pop Mean (pg13)

* Quantitative response variable w/ no expl. Variable
* One Sample Z – Test
* Conditions
  + Random, normal dist or CLT (n >=30)
* Test Stat:
* T – dist. w/ n-1 dv

6.4 Errors and Stat Power (pg16)



* Type I Occurs when test stat is in extremes of null dist
  + By keeping sigma small, reduce the chance of making type 1 error
* Type II B (beta) = probability of making type II error
* Power: how likely a test is to find an effect
  + Power = 1-P(typeII)=1-B(beta)
  + Probability a test w/certain specs would correctly reject the null
* Most concerned with keeping Type I error low
* There is a trade off between B and sigma
* Power increases with sample size by decreasing the std error of the stat
* Power increases if we increase sig level
* Power increases if a bigger effect to find
* Only first of these 3 are in control of the researcher
* More skeptical you are of the alternative, the lower a sigma you want (e.g. .01 versus .05)
* Determinine the sample size that would be necessary to achieve 80% power with 5% chance of making type I error (pg21)