**Lab 8 Discussion Question Notes**

1. Did we use a random sample?

* + Note that most methods used later in the discussion questions to make inference require a random sample. If this was not a random sample then state that but still use the methods for inference.

2. Two ways attempted to control for factors other than taste that could affect preference.

3. Proportion preferring bargain (last value in table 8.5 on page 62).

4. Perform a hypothesis step. You must do all of the following steps of the hypothesis step (you may use the back of the paper if you need more room).

* + Step 1: Check the assumptions (note that they are not all met).
    - Categorical Data
    - Data Randomly obtained.
    - Sampling distribution is normally distributed if n ≥15 and n(1-) ≥15.
  + Step 2: State the hypothesis:
    - : p =
    - : p > or : p < or : p ≠
  + Step 3: Calculate the test statistic.
  + Step 4: Calculate the p-value.
    - Draw a normal curve; label your test statistic; shade the area based on the inequality in the ; use the normal table to find the shaded area under the normal curve. This is the p-value.
  + Step 5:
    - p-value < α => Reject => With p-value= , we have sufficient evidence that (state Ha in the context of the problem).
    - p-value > α => Do not Reject => With p-value= , we do not have sufficient evidence that (state Ha in the context of the problem).

\*\*\* You must do this by hand but you may use StatCrunch to check you work: Stat-> Proportion Stats-> One Sample -> with summary. Put # successes; # observations; set up hypothesis test with the correct inequality in the alternative. \*\*\*

*Note if you are doing the EWA on this lab you must have all steps in the appendix (if anything is missing points will be taken off).*

5. Compute and interpret 95% confidence interval.

* Note if you are doing the EWA on this lab you must show calculations by hand (if anything is missing points will be taken off).
  + Interpretation: We are % confident that the population proportion who prefer the bargain brand is between and .

\*\*\* You must do this by hand but you may use StatCrunch to check you work: Stat-> Proportion Stats-> One Sample -> with summary. Put # successes; # observations; select confidence interval. \*\*\* *Note if you are doing the EWA on this lab you must have all steps in the appendix (if anything is missing points will be taken off).*

6. Is it plausible that the two brands are equally preferred? Think of what value p would be if equally preferred and see if it is in the interval or not.

* + You must show justification of your answer.

7. Read the Reality Check

**EWA Instructions**

**Due date**: A hard copy of our paper is due **at the beginning of class (12:00 PM) on November 18th.** Papers that are submitted after 12:00 PM on November 18th will receive a 25% late penalty and will only be accepted through November 25th. Papers submitted after 11:59 PM on November 25th will receive a zero.

Papers must be **typed.**

Paper must be **written independently** (if your paper sounds a lot like another students paper you will both receive a zero and you will be reported to academic integrity).

Papers must be **printed out and turned in to the lab instructor**. Do not email me your paper.

Papers can be single spaced and two-sided (or any other format is okay as well).

How to write your paper?

* You want to write this paper so that someone without statistical knowledge understands what you did and what the results show.
* Only talk about the product you set up (don’t talk about the other products in the room you were in or the other rooms at all). Pretend that you were the only group doing a taste test.
* Make sure you mention which product you set up the taste test for and the results of that product.
* Follow the EWA Tips for 8 carefully.
* Biggest issue with EWA is students not including everything outlined on the tip sheet.
* You may use headers and work through the tips one at a time. (Treat this as a checklist)
* Don’t forget anything outlined on the Tips sheet as this is what is used for grading.
  + For example, under results it says that a roadmap is required. All you have to do is make a table with one sentence per table you are going to include in this section. (all sentences go before the tables in a paragraph). This is not hard to do but if you don’t include it you get points off.
* Don’t forget the appendix – everything outlined in discussion questions 4 and 5 above – this can be handwritten.

Advice:

* Write the paper sooner rather than later. There is a long time between when the lab is done and when the paper is due. It is better to write it when the processes are fresh in your mind than waiting and trying to remember what you did.