EPS 200 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Experimental Design Lab Report Guidelines

1. Format: Google Doc
2. Sections
   1. **Title:** 
      1. May be stated as a question (e.g. How Does ­­­\_\_\_ Affect \_\_\_\_?)
      2. May be a statement (e.g. The Effect of \_\_\_\_ on \_\_\_\_.)
   2. **Abstract:** This is usually a brief summary of your entire paper. Tell what you did and explain what you found. Make this section as short as possible. In this section, make sure that you…
      1. Share your hypothesis (alternate).
      2. Give a reason for choosing that hypothesis.
      3. *Briefly* tell how you tested your hypothesis.
      4. *Briefly* share your findings.
   3. **Methods:** Describe your methods in *detail*. Convince readers that you conducted a high quality experiment and provide enough detail so that they can reproduce your experiment if they wish. In this section…
      1. You must include *at least* one useful photograph showing your data collection method.
      2. Convince readers of all of the following…
         1. Important variables are controlled. **This is the most important part!**
         2. The dependent variable is measured with precision.
         3. Your experiment is a logical test of the experimental question.
         4. Your sample size is sufficient (at least 10 tests for each case of the independent variable).
         5. Bias has not affected the data (only important if there is reasonable suspicion of bias).
   4. **Results:** In this section, share your findings. This section must include…
      1. A **two-column table** showing all of your data and communicating the independent and dependent variables. This table should be created in Google Sheets (or some other spreadsheet software). The table should have…
         1. Column headings that clearly distinguishing your two test groups
         2. A title explaining what the data represent (measurements of your dependent variable).
         3. Units for the data, when applicable.
      2. **A histogram** showing the distribution of your data. This table should be created in Google Sheets (or some other spreadsheet software). \*You will receive instructions for this\*.
         1. Different colors for your two groups.
         2. A legend describing what each color means.
         3. Proper labels for your X and Y axes.
         4. An appropriate title. This could be the same title from part A, above.
   5. **Statistical Analysis.** In this section…
      1. Identify the statistical test that you used.
      2. Describe the null hypothesis that you evaluated using that statistical test.
      3. State whether you performed a one or two-tailed test and state the significance cutoff (0.05).
      4. State the p-value that you obtained from the test.
      5. State whether the null hypothesis is accepted or rejected based on this p-value.
   6. **Conclusion (discussion)**
      1. Provide an answer to your experimental question. In other words, describe the extent to which your hypothesis (alternate hypothesis) was strengthened or weakened by your experiment.
      2. Support your conclusion by restating the p-value and significance cutoff from your statistical test, and by telling whether your data met the cutoff for significance.
      3. [Optional] If you would like to discuss some broader ideas relating to your study, you *may* do that here. What does this research mean for humankind? Did your findings generate new questions and ideas for more research? Was your p-value close enough to warrant repeating the experiment on a larger scale?