# MA206 – Statistics – Hypothesis Testing Project

In this project, you will work with a partner to collect data about two questions of your choice. You will do one hypothesis test on means and one test on proportions to answer your questions.

You will need to collect the data by coming up with questions and asking people around you (in your neighborhood, classes, workplace, Facebook, etc.). You will need to survey at least 60 people for each question (ideally, you want $n_1 \geq 30$ and $n_2 \geq 30$). You may use your calculator or Excel to analyze the data.

An example of a suitable question to analyze for the hypothesis test on means is "Are those who drink and drive older on average?" Note that one variable ("age"in this case) must be a quantitative piece of data and one variable ("drinking and driving" in this case) is a binary piece of data (i.e. has a "yes" or "no" answer).

An example of a suitable question to analyze for hypothesis test on proportions is "Are men more likely to enjoy coffee?" Note that both variables ("gender" and "liking coffee" in this case) are binary pieces of data.

We will go through an example of how to set up the computations in class

**PROJECT REPORT**

Each pair will submit one typed report. You can be creative and artistic with the report. I will not grade substandard writing. Therefore, make sure the grammar and syntax of your report are correct. You may visit the Writing Center for help in this aspect.

I will grade for accuracy and depth of analysis, but classiness is always appreciated.

**Describe Your Data Collection.** How did you come up with your questions? What was the process for collecting the data?

**Display the Data.** Put the data into a table and clearly label the columns. Make sure to include what $\mu_1$, $\mu_2$, $p_1$, and $p_2$ mean in relation to your questions.

**Analyze the results.** Conduct both hypothesis tests and give the p-values. State your alpha level. Do you reject or fail to reject the null hypotheses. What can you say about the alternative hypotheses?

**Reflect**. Answer the original questions that you posed. What can you generalize about the survey subject? What are the limitations of the data? Are there any inconsistencies in the data? If there was anything else interesting about your project, include it in this section.

**DUE DATES**

You must notify me of your survey questions by Tuesday, November 24th.

The final report of your project is due **at the beginning of class Tuesday, December 8th.**
(Late work will not be accepted.)