

In my A.P. Statistics class, I assign several projects throughout the year. These projects reinforce the topics we are learning in class and allow students to apply these topics to a question of interest to them. Below is a project that I have assigned to my A.P. Statistics students as a good end of the year review.

## **FINAL STATISTICS PROJECT**

**OBJECTIVE:**            **Using the concepts we have covered this year, compare two populations to determine if they are significantly different.**

### **GUIDELINES:**

**I.        Formulate a Hypothesis** (10 points)

Decide upon two populations that you want to compare. Are you comparing means or proportions? Formulate null and alternative hypotheses. Also pick a significance level.

**II.       Collect Data** (20 points)

Describe your design. Survey or experiment? SRS, Stratified, Multi-Stage, etc.? Matched Pairs? Describe your data. Is your data categorical or quantitative? What are the units of measure (if any)?

**III.      Analyze the Data** (20 points)

Graph your sample data to check for outliers and skewness, if appropriate; or check for normality using the conditions for categorical data. Find the sample mean and sample standard deviation or sample proportion.

**IV.      Draw Statistical Inferences** (40 points)

Using a hypothesis test, determine if your data suggests that the two populations are significantly different. Remember to show all of the steps of a hypothesis test and to state your conclusion in context.

**V.       Reflect on the Process** (10 points)

What are the strengths and weaknesses of your project? What would you have done differently? Pick an alternative mean or proportion and find the power of your hypothesis test.

**FINAL PRODUCT:** A 2- 3 page typed report of your results, including tables of data and computer-generated graphs. You will also present this project to the class. You should have visual aids (such as PowerPoint, posters, handouts, etc.).

### **DEADLINES:**

<b>Choice of topic / partner</b>	<b>March 26</b>
<b>Data Collected</b>	<b>April 3</b>
<b>Final Project and Presentation</b>	<b>April 8</b>