

AP Statistics: Final Project

Description: You'll study something of your choosing and use the statistics you've learned this year to carry out an experiment or study and report your findings. How to do it?

- a) Identify a researchable (testable) hypothesis
- b) Design a properly controlled experiment/observational study/survey to test it.
- c) Carry-out the experiment/study and collect the data (obtaining values)
- d) Analyze the resulting data

Group Size: You may do this project by yourself or with a partner, or a group of 3 – no more than 3. THREE students must triple the data, triple the number of significance tests. If you are absent a day, you are responsible for making up what you missed. There are multiple parts to this so pay attention to the due dates.

Part I: Project Proposal

Due:

You must have an approved project proposal turned in by the end of class. To get approval, you must clearly complete the Project Proposal Form. If relevant, you must also make sure that your experiment/survey/and study will be safe and ethical for human subjects.

Part 2: Data collection

Due:

- Data collection can come from three sources: A well-designed and carried out survey, observational study, or experiment. Your data collection procedure should accurately reflect the question being researched.
- A full, detailed description of the collection procedure should be included in your final report. Thoroughly describe the procedure in terms of the methodology learned this year.
- Organize raw data in a spreadsheet and include in final report.

Part 3: Exploratory Data Analysis

Due:

- Analyze raw data using appropriate graphical procedures
- Include appropriate graphical displays and numerical summaries – bar graphs, pie charts, counts, proportions, percents, etc.
- Interpret the data in context of your research question.

Part 4: Inference

Due:

- Form appropriate hypotheses to answer your research question
- Check appropriate conditions for your test of significance.
- Show all applicable work: Sampling distribution, test statistic calculation, p-value, etc.
- Answer your research question based on your inferential calculations

Part 5: Final Paper/Presentation

Due

- You are expected to write up your findings in a final project. This report should follow the format that is provided for you.
- You and your partner(s) will present your findings to the class in a 10 – 15 presentation for you to share the critical aspects of your project. You are expected to incorporate visuals – PowerPoint, etc.

AP Statistics Project Proposal

Name(s): _____

Research Question: What do you intend to answer through this project?

Population of interest: Describe your population of interest.

Hypothesis: State your null and alternative hypothesis.

Data collection: How will you go about collecting your data? Be specific.

Experiment? Survey? Observational Study? (Please attach survey questions if you distribute a survey)

How will you select your sample? What supplies will you need?

State the statistical test(s) you plan to use to analyze your data. What test are you going to use and why?

Teacher Approval:

_____: Ok - begin your data collection

_____: Not ok - see back for suggestions. Resubmit for approval

AP Statistics Written Report

The written report should include each of the sections and requirements described below in order. This must be a double-spaced and typed report!!!

___ Cover sheet with title (posed as a question) name(s) and date

___ Introduction (state topic, project goals, and direction)

Describe the project by discussing your question of interest, why you chose it, how you collected your data, and how you planned on analyzing it. Your null and alternative hypotheses clearly state in words and mathematically

___ Summary of Experiment (methods, analysis, charts, graphs of results)

Describe how you carried out your experiment/study and discuss how/why you designed the experiment/study/survey. If you sampled students, describe your sampling procedure. Be sure to include a discussion of potential problems with your data collection and any improvements you would make in future studies.

___ Summary of Research (data, statistics, charts, graphs, sources)

All the data you gathered displayed in a table. If appropriate, include good data summaries (means, standard deviations, 5-number summaries, etc.) and a commentary on these summary statistics. Description of the statistical test you used to test your hypothesis and reason(s) for choosing the test you chose. Show all calculations and find a p-value and/or a confidence interval.

___ Final Summary of Project

State your conclusion about the hypothesis in context of your problem. What generalizations might you draw about the population from which the sample was drawn? What were the limitations of your project? How could you address those to better answer the question of interest.

AP Statistics Project Rubric

Name(s): _____

___ Introduction (state topic, project goals, and direction)

10 points: Full explanation of research question, methods, etc.

5 points: Partial/incomplete explanation

0 points: No explanation

___ Data Production (methods, analysis)

20 Points: Complete description of data collection methods, etc

10 Points: Partial/incomplete description

0 Points: No description

___ Data Analysis (Data, statistics, charts, graphs)

20 Points: Complete data analysis (graphs, explanations in context)

10 Points: Partial/incomplete analysis, not in context

0 Points: No analysis, incorrect analysis, no test

___ Inference (define parameter, appropriate test)

20 Points: Appropriate test (parameter, hypotheses, test, interpretation)

10 Points: Partial/incomplete test

0 Points: Incorrect/no test

___ Final summary of project (conclusion and reflection)

15 points: contextual conclusion, limitations of study/recommendations

5 points: incomplete conclusion

___ Presentation

5 points: 10 - 15 presentation of results, complete with visuals

___ Format and deadlines

10 points: Appropriate format and all deadlines met

___/100 Final Grade