

FINAL PROJECT

AP STATISTICS

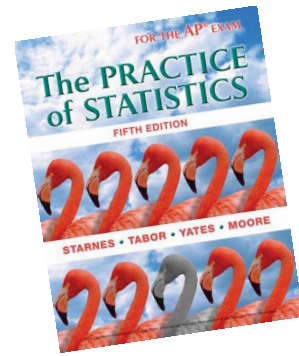
AP Statistics has introduced you to the methods and procedures that allow us to explore four themes: Producing Data, Exploring Data, Anticipating Patterns, and Statistical Inference. This Final Project is designed to allow you to demonstrate your understanding of the connections between these themes as you carry out a statistical study. Your task is to identify a research question that interests you, design a study to collect data on that question, analyze the data, and answer the question using an appropriate form of inference.

PROJECT OUTLINE:

- 📌 Identify a Research Question
- 📌 Collect Data – Survey, Observational Study, or Experiment
- 📌 Analyze Data – Graphically and Numerically
- 📌 Perform Inference – Answer Research Question
- 📌 Present Findings

AP STATISTICS: FINAL PROJECT

"IT'S WHAT YOU LEARN AFTER YOU KNOW IT ALL THAT COUNTS"
~HARRY S. TRUMAN



PROJECT CALENDAR				
Date		Project Task	Assignment	Done
Thu	5/2	Project Instructions	Determine Partner & Research Question	
Fri	5/3	Research Question	Research Questions/Plan Due	
Mon	5/6	Data Collection	Collect Data	
Tue	5/7	Data Collection	Raw Data Due	
Wed	5/8	Exploratory Data Analysis	Graphical/Numerical Analysis	
Thu	5/9	Exploratory Data Analysis	Graphical/Numerical Analysis Due	
Fri	5/10	Inference	Inference Procedure Due	
		Write Up Findings	Work on Presentation	
Thu	5/23	Write Final Conclusions	Finalize Presentation	
Fri	5/24	Begin Presentations	Final Presentations Start	

Note:

The purpose of this project is to allow you to communicate your understanding of the connections between the four themes of Statistics.

Your final project should clearly indicate your understanding of data collection, analysis, and inference.

Presentations should be about 5-10 minutes and should incorporate visuals (PowerPoint, video, etc.).

Due Dates:

5/3: Partner and Research Question

5/7: Raw Data

5/9: Exploratory Data Analysis

5/10: Inference

5/23: Final Presentation

Mr. Selvaag should receive an email attachment or have your presentation shared with him on Google docs by 11:59 pm on the evening of Thursday, May 23rd. Failure to do so will result in a loss of points.

Google docs can be shared with jay.selvaag@mpls.k12.mn.us

PROJECT OBJECTIVES AND SKILLS:

You and your partner should refer to this page for the project objectives. See the Project Calendar for suggested due dates for each portion of the project.

Research Question

- Identify a question that is interesting, appropriate, and worthy of investigation.
- Your question must lend itself to data that can be analyzed using the methods learned.
- You are expected to get your question approved prior to collecting data.

Data Collection

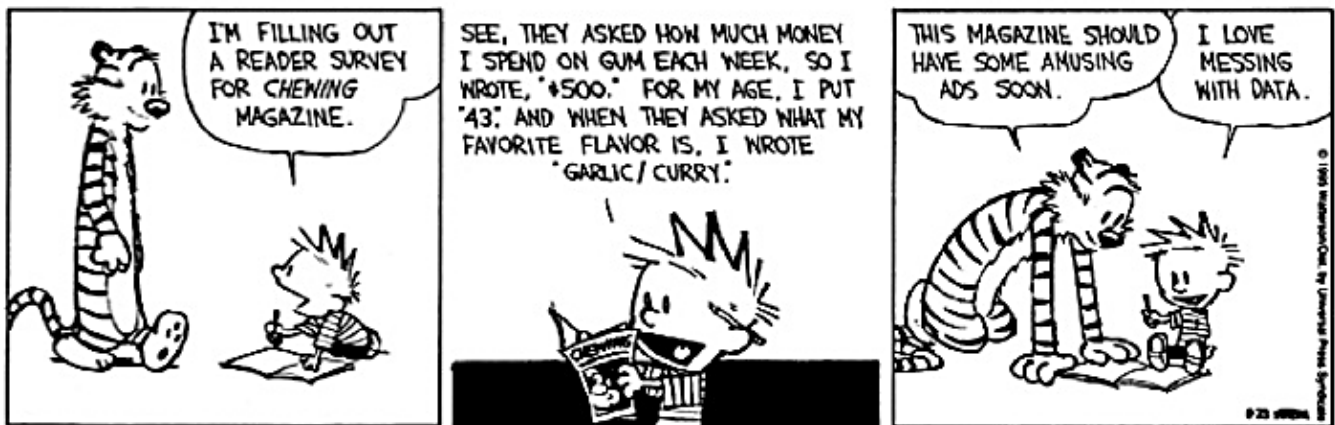
- Data can come from three sources: A well-designed and carried out survey, observational study, or experiment.
- Your data collection procedure should accurately reflect the question being researched, and should be randomized as much as possible.

Exploratory Data Analysis

- Organize raw data in a spreadsheet.
- Analyze raw data using appropriate graphical and numerical procedures.
- Describe the results of your raw data in the context of your research question.

Inference

- Form appropriate hypotheses to answer your research question.
- Check appropriate assumptions/conditions for your interval or test.
- Carry out a complete inference procedure: All of PANIC or PHANTOMS.
- Answer your research question based on your inferential calculations.



PROJECT REQUIREMENTS

You and your partner will present your findings to the class in a 5-10 minute presentation. Your PowerPoint/video should consist of a summary of your research and study as well as your personal conclusions. The goal is to enlighten the audience with words, numeric summaries, and appropriate graphs. Use the following format:

📌 **Title Page (title of presentation, your name(s), class, my name, year)**

📌 **Introduction (state topic, project goals, and direction)**

Describe the project by discussing your question of interest, some background on the question, why you chose it, and what you hope to discover.

📌 **Data Collection (methods, analysis)**

Describe, in detail, how you collected your data. If you performed an experiment, include a diagram of the experiment along with your discussion. If you sampled students, describe your sampling procedure. Thoroughly describe your data collection/sampling procedure in terms of the methodology learned this year.

📌 **Exploratory Data Analysis (data, statistics, charts, graphs)**

Perform statistical analysis on your data. Describe your findings using numeric summaries along with appropriate graphs (histograms, bar graphs, scatterplots, etc.). Interpret your findings in the context of your research question prior to performing inference.

📌 **Inference (define parameter(s), check conditions, interval/test, conclusion)**

Perform an inference interval or test on your data. Thoroughly describe the inference interval/test, showing all applicable work for conditions, calculations, etc. Write a complete conclusion in the context of your problem.

📌 **Final Summary of Project**

Conclude with an overall summary of your findings. Be sure to answer your original question of interest! Also, include a reflection that describes any potential problems with your data collection and any improvements you would make in future studies. What were the limitations of your project? How could you address those to better answer the question if you had more time and resources?

You should perform both exploratory data analysis and inference with your data. Data should be supported by appropriate graphs. Also, emphasize the processes used to collect and analyze your data. There is no set length to your presentation, just thoroughly explore and analyze your topic as best you can within the given timeframe of this project.

Your ultimate goal is to demonstrate an understanding of the connections between collecting, analyzing, and using statistics to answer a question of interest. Use this presentation to illustrate these connections with respect to the context of your question.

PROJECT PROPOSAL – RESEARCH QUESTION

Name(s): _____

Period: _____

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

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

Inference Procedure: What test will you use and why?

Teacher Approval:

_____: OK – Begin your data collection

_____: Not OK – Resubmit for approval

PROJECT GRADING

This project counts as your **FINAL PROJECT GRADE – 100 points**

Name(s): _____

Period: _____

_____ **Title Page/Introduction**

10 points: Full explanation of research question, introduction to topic, etc.

5 points: Partial/incomplete explanation

0 points: No explanation

_____ **Data Collection**

20 points: Complete description of data collection methods, sampling procedure, etc.

10 points: Partial/incomplete description, biased data collection method

0 points: No description

_____ **Exploratory Data Analysis**

20 points: Complete data analysis with raw data, graphs/charts, analysis in context, etc.

10 points: Partial/incomplete analysis

0 points: No analysis

_____ **Inference**

30 points: Complete inference procedure with parameter, hypotheses, conditions, calculations, conclusions, etc.

20 points: 1-2 minor mistakes apparent, missing a small piece of the inference procedure

10 points: Major mistakes apparent, missing much of the inference procedure

0 points: No inference procedure

_____ **Final Summary of Project**

15 points: Final conclusions in context with limitations/error of study, recommendations for future studies, etc.

5 points: Partial/incomplete summary

0 points: No summary

_____ **Presentation**

5 points: 5-10 minute presentation of results

– **5 points:** Presentation not emailed to or shared with Mr. Selvaag by due date.

– **5 points:** Not prepared to present/unexcused absence at scheduled time.

_____ **/100 Total Project Score**