

Final Project

The final requirement for this course is the completion of a project that demonstrates your understanding of the major concepts of AP Statistics. Your project must start with an interesting and meaningful question; use a good design for data collection; summarize the data visually, numerically, and verbally; use the data to make appropriate inferences; and reach sound conclusions about the original question. You've learned a lot this year. Now it's time to show off! You may work individually or in groups of at most four, expand and improve earlier work or start something new. See me for ideas, advice, and assistance.

Requirements

1. Choose a good question to investigate.
2. Design an appropriate study or experiment.
3. Collect good data; they may come from a survey, observational study, experiment, or other sources such as publications or the internet.
4. Summarize your data using appropriate graphical displays, summary statistics, and verbal descriptions.
5. Make inferences based on your data.
6. State your conclusions.
7. Present your research to the class.
8. Submit a complete written report.

Schedule

Date _____	select a topic, get approval, and sign up to present the results;
Date _____	work on projects in class – be sure to leave enough time to prepare your presentation (copy handouts, prepare posters, make overhead transparencies, etc.);
Date _____	class presentations (about two per day);
Date _____	written reports due.

Evaluation

Grades will be based upon your research question(s), your design, the proper application of statistical concepts and methods, your class presentation, and your written report.

PROJECT ADVICE...

Every stage of your project is important, and decisions you make at the start can have a major impact on the overall success. Don't rush into anything; think it all through carefully.

Goals

- Think of an interesting question or an issue we care about. (It may help to think beyond the narrow world of our school.
- Create a good design, free of bias, randomized, that will produce useful data. Remember that controlling an experiment is often easier than sampling.
- Give yourself adequate time to collect and analyze the data. The due dates arrive faster than you think they will!
- Make clear summaries - graphical, numerical, and verbal.
- Produce a sophisticated statistical analysis. **You must have a confidence interval, a hypothesis test, or a regression analysis.** Most projects will probably involve more than one such analysis.
- Reach statistically justifiable conclusions about your original question(s).
- Use proper statistical terminology and methods throughout.
- Make a clear, thorough, and interesting presentation to the class.
- Submit a complete report (a sure 4 by AP standards!) Remember, correctly using Statistics is more important than arriving at an earth-shaking result!

Some ideas. . . (Feel free to propose something of your own. Be sure to get advice *and approval* before starting.)

- Do after school jobs or participation in sports affect grades?
- Does marijuana or alcohol use differ by grade level, gender, etc.
- Can we predict height or weight from shoe size?
- Are smokers less likely to wear seatbelts?
- Which grocery store or drugstore has the lowest prices?
- Do males get higher Math SAT or AMC scores than females?
- Are females equally likely to enroll in advanced math, science, or computer courses?
- Do ninth graders study more or less than juniors or seniors?
- How much stronger is a person's dominant hand?
- Are lefties more coordinated with their right hands than righties with their lefts?
- Do people prefer Coke or Pepsi?
- Can people tell the difference between national brands and store brands?
- Can people tell by taste whether soda comes from a plastic bottle, a glass bottle, or a can?
- Does mail arrive faster with zip codes?
- Does ESP or astrology actually work?
- Are reaction times faster for males or females? athletes/non-athletes? right/left hand?
- Are homeruns, RBI, or batting averages good predictors of baseball salaries?
- Are NFL or NHL teams more likely to be able to come from behind in home games?
- What is the trend in swimming records? in college costs? in birth rates?

AP Statistics Project #2

In addition to your statistical analysis project you must, in groups of no more than 4, choose one of the following tasks as your last assignment to be graded for the 4th 9 weeks.

1. Create a video promoting AP Statistics.

Sometimes I have a hard time convincing students to take the class so I need your help. Come up with a piece that I can show Math Analysis and Calculus students which will make them go to their counselor and sign up. Take one or more of the four basic principles of Stats that we have talked about this year:

Exploring Data - Interpreting Graphical Displays

Planning a Study - Methods of data collection

Anticipating Patterns – Producing models using probability and simulation

Statistical Inference – Significance tests, Confidence Intervals, etc.

and elaborate on its importance, meaning, or how it will make future students much smarter. You could even talk about the most useful thing you learned. You know your audience better than I do so convince them.



- ### 2. Create a parody music video (my personal favorite☺) The lyrics must be changed to include statistical terms and concepts that we have talked about this year. The lyrics have to make sense and I should not have to put a warning label on it. If it is good enough, it may make it into one of my precious Powerpoints and you will live on forever.....or at least until I retire.

For #1 or #2 ,your grade will be based on overall preparedness and knowledge of statistical content, creativity, and to be honest, whether I think I could use it or not as part of my marketing strategy for promoting the course. You will be asked to turn in a copy of the video for either and if you choose #2, the lyrics as well.



3. Statistical Calendar.

Pick a month and let me know so I can record it and no one else will do the same month. I already took February by the way. Create a calendar where on each day there is a statistical word problem whose answer is the day that it is on. You may use problems out of the book, your notes, or ones that you make up. I would save the Mean and median type ones for last because they are easy to manipulate.



For #3, your grade will be based on correctness of randomly selected problems, creativity, appearance, and to be honest, whether I think I could use it or not on my wall.

Presentation Rubric: AP Stats Final

	4	3	2	1
<u>Preparedness</u>	Clearly organized. Cue cards/ visual aids.	Some preparation evident, but Not very organized.	Little preparation evident.	No evidence of preparation or organization.
<u>Visual Aids</u>	Aids are clear and revelant. Appropriate to the topic.	Relevant but room for improvement in clarity.	Aids are used but need improvement in relevance.	No visual aids.
<u>Content</u>	Clear intro, body, and conclusion. Sound statistical techniques and analysis used. Concise, organized flow. Attention getter.	Statistical analysis and techniques are relevant. Missing either intro, conclusion, <u>or</u> disorganized with little flow.	No intro or conclusion. Little flow/ disorganized. Statistical analysis partially correct.	No intro/ conclusion. Disorganized. No flow. Statistical analysis irrelevant. incomplete, or incorrect.
<u>Creativity & Originality</u>	Exceptionally creative and original ideas.	Marginal creativity and originality.	Very little creativity. Ideas not very original.	No creativity or originality.
<u>Tone/Volume</u> <u>Body Language/</u> <u>Voice</u>	Confident delivery. Clearly audible. No feet tapping, fidgeting, etc. Flows nicely.	Some hesitation in delivery. Some fidgeting stumbling, pauses, etc.	Frequent pauses, stumbling. Inaudible.	No confidence in delivery. Complete lack of flow and fidgeting.