Welcome to Advanced Placement Statistics!

This class is the culmination of the Advanced track of the Mathematics curriculum at Cretin-Derham Hall as well as an elective for students in the Honors track. It is intended for college-bound juniors and seniors who enjoy mathematics and are interested in specific, real-world applications. You will find that AP Statistics does include some mathematics in it, but there is also a heavy dose of English and social studies mixed in.

With this in mind, I have set up a summer reading assignment leading up to the academic year. The assignments are not content-specific, but rather, are intended to give you a broad introduction to statistics. We will refer back to your summer reading throughout the course.

For example, when we discuss graphical displays of numerical data, you will create graphs of your own Interesting Data Set. Or when we discuss experimental design, you will refer to your own Interesting Experiment or Observational Study to ensure that correct design or sampling methods were used.

There are three components of the summer reading assignment:

1. Interesting Data Set
2. Interesting Experiment or Observational Study
3. Interesting Current News Article

This class will be a lot of work, and I want to let you know that up front. Statistics is not a spectator sport – meaning you will not improve your understanding of statistics by watching other people do statistics. In order to do well, you're going to have to roll up your sleeves and get to work yourself.

This class offers a chance for you to earn college credit while still in high school! My goal is that everyone who takes this course will feel confident and prepared to get a passing score on the exam.

I am very excited to work with you in the upcoming school year!
Have a great summer and we'll see you in the fall! If you have any questions or concerns, please contact me by email. I check at least once a week throughout the summer.

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Interesting Current News Article

Over the summer, pay attention to numbers, statistics, and conclusions based in mathematics that you see in the news. It could be a recent poll on a political candidate or issue, a projection about what will happen in the future based on historical data, or a study that concludes some certain activity is good/bad for your health in some way.

Print the article, unless it is longer than 3 pages. If it is longer than 3 pages, try to find a condensed version or print the main points and findings. Include any graphs, tables, or charts given in the article.

Answer the following prompts on this page:

- Why did this article grab your interest?
- What are the main findings of the article? Do you agree with or believe the conclusions reached in the article? Why or why not?
- What questions would you ask the author of the article if you could sit down to discuss this topic?

Interesting Experiment or Observational Study

Your second task is to find an experiment or observational study that is interesting to you. It must come from a scholarly, peer-reviewed journal, but it can be on any topic that you find interesting. We will refer to this study several times throughout the year; so make sure it is something that you find value in learning more about.

Please print the text of your article, unless it is longer than 5 pages. If it is longer than 5 pages, try to find a summary or synopsis that can be printed. Especially make sure you include any graphs, charts, or tables provided.

Answer these prompts on a separate page for an experiment:

- What was the experimental design? (Look for words like *completely randomized*, *blocked*, *matched-pairs*, etc.)
- Was there a control group? How did this differ from other treatment groups?
- How were subjects chosen? Which larger population or group could conclusions from this experiment be inferred to?
- What types of calculations or tests were made to reach conclusions? (Look for words like *confidence interval*, *significance test*, *chi-square test*, *p-value*, etc.)
- Any other vocabulary words that were used? (Look for words like *blind*, *double blind*, *confounding*, *lurking variables*, etc.) Try to use context clues to determine what they mean.
- What was the general conclusion of the experiments?
- If you could do a follow up experiment, what would you do differently? Why would this make the experiment better?

Answer these prompts on a separate page for an observational study:

- How were subjects selected? (Look for words like *volunteers*, *Simple Random Sample/SRS*, *stratified random sample*, *cluster sample*, etc.) Which larger population or group could conclusions from this study be inferred to?
- Was there a control group? How did this differ from other groups?
- What types of calculations or tests were made to reach conclusions? (Look for words like *confidence interval*, *significance test*, *chi-square test*, *p-value*, etc.)
- Any other vocabulary words that were used? (Look for words like *bias*, *longitudinal*, *confounding*, *lurking variables*, etc.) Try to use context clues to determine what they mean.
- What was the general conclusion of the study?
- If you could do a follow up study, what would you do differently? Why would this make the study better?

Interesting Data Set

It's time to find some data that are interesting to *you*! This must be a set of **quantitative** data, which means that the values being recorded are numeric. For example, it could be the number of pets families own, the number of homeruns hit by each team in the league, or the weight of each musical instrument in the marching band. Remember that you will be using this data set several times throughout the year; so make sure it is something that you find value in learning more about.

There must be at least 20 values in your set, and to keep things simple, it's best if there are fewer than 40 values. Give your set an appropriate title and label the units, if needed, to give readers a sense of context for your numbers.

Title:

Unit Label (if appropriate):

Does your data set come from a **census** (meaning all values from a certain population are included) or from a **sample** (meaning these are a subset of the values from a larger population)?