Amity High School

2020 AP Statistics Summer Assignment

Mr. DeMeo
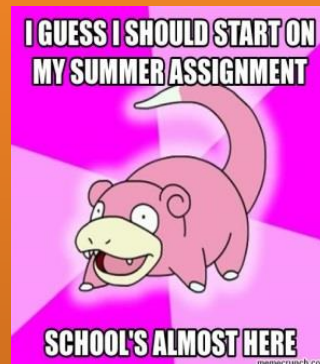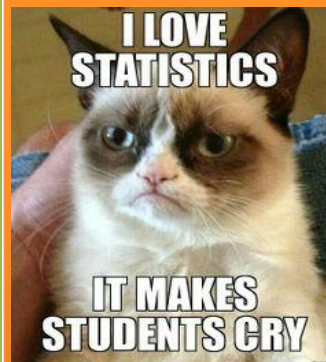
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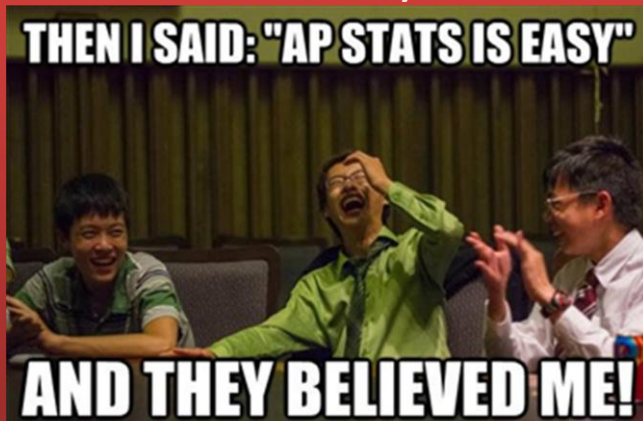
The **Urban Dictionary** defines AP Statistics as:

A division of math that requires much writing and analytical thought. Taken by AP nerds, those hell bent on going to the 'best' colleges, or by those with a masochistic streak. Can be taken in place of Calculus, or, for those who really enjoy self-punishment, concurrently. Mostly taken by seniors.

"I'm taking AP Statistics this year because I don't feel like taking AP Calc, but my year wouldn't be hellish enough without it."

Welcome to AP Statistics! This course will be unlike any other math class you have ever taken! To get the most out of this course you need to be competent in basic algebra, be familiar with basic statistical measures, understand how to use a TI calculator, and, most importantly, be willing to clearly and completely explain your answers in context.

Although this *is* a math course, AP Statistics concentrates *much more heavily* on thinking, reasoning, writing, and communicating than it does on number-crunching. Graphing calculators and computer software programs will do most of the tedious "busy work" for you.

This course is focused on four interrelated areas of concentration;

- **Exploring Data**. What patterns in a set of data do you see? What do these tell us about the data? What can we learn from them?
- **Sampling and Experimenting**. What plan would you implement to conduct a study? Can you effectively write a proposal for simulating a real-world situation?
- **Anticipating Patterns**. What can you surmise about random phenomena by using probability? How can you extrapolate your model into the future? What might you hope to have happen?
- **Statistical Inference**. How can you apply given parameters to your test hypothesis to see if it is valid?

This summer assignment is meant to introduce you to the wide world (cliché #1) of statistics, to have you "hit the ground running" (cliché #2) and allow us to move at a "fast and furious" (cliché #3) pace throughout the year.

Since you will obviously have many other things to do this summer, pace yourself! 30-45 minutes per week, on average, or 5-6 hours on the night before school starts (☹), should enable you to do all of the required work.

Please feel free to contact me @ scott.demeo@amityschools.org over the summer if there is any difficulty completing the summer work or questions that arise.
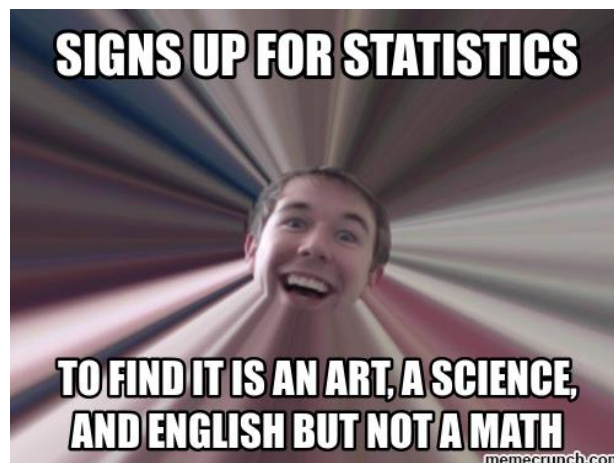
All of the summer assignment requirements are due by the 3rd class session of the year with the exception of **F—Become an Expert on Chapters 1 and 2**. This should be done by the first day of class. **Do not start working on this section until late August**. (I need you to remember what you're doing when we start the class!)

The work must be done entirely by you. You can email me at any time for assistance, but the work must be your own.

Assignments that have an "*" in the title will be graded. Make sure to complete and sign <u>Attachment A</u> indicating what you did or did not do this summer.

This packet will be posted on Google Classroom along with individual links to the videos you will be watching. All videos must be watched through the EdPuzzle links on Google Classroom. You will be automatically registered to EdPuzzle by signing into Google Classroom.

A. Buy/Rent/Borrow a TI Calculator*

It is <u>mandatory</u> that you have a <u>charged</u> *TI* calculator for every class day. Most of the examples and problems we will work on will use this calculator. If you cannot afford a TI calculator, contact Mr. Kellogg immediately upon your return to school and he will go over the process of borrowing a calculator for the year. I would stay away from any calculator other than a TI.

THIS IS MY CALCULATOR
THERE ARE MANY LIKE IT BUT THIS ONE IS MINE

Familiarity with it is easily worth 0.5-1.0 points (out of 5) on the AP Exam. (93% of Statistics are made up on the spot!)
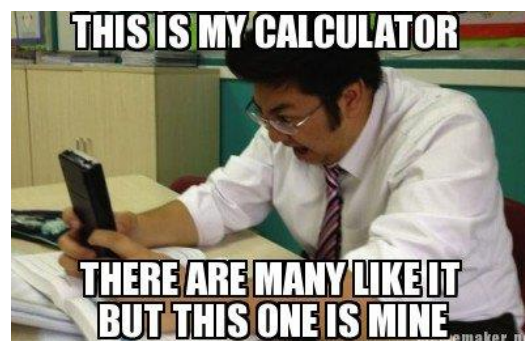
B. Log into the 2020-2021 AP Statistics Google Classroom Site*

Students can join the class with this code: **cb6fooi** <u>This must be done before the end of June</u>.

ONE DOES NOT SIMPLY
POST RUDE MEMES IN GOOGLE CLASSROOM

C. Become Familiar with Our Stats Book*

The in-class textbook is **The Practice of Statistics**, 6th Edition, and you will eventually be getting a set of AP Exam Review books later in the year. This is a very readable book, with great instructions and examples. For the summer, you are only responsible for the first two chapters. **There will be a link to this book in the Google Classroom to access digitally.**
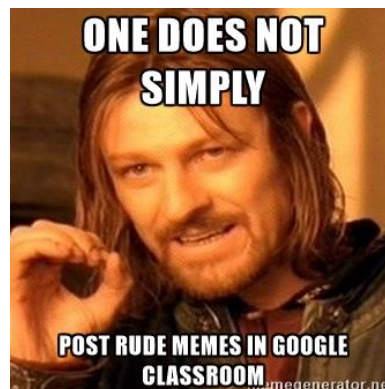
D. Understand what Statistics is All About*

What Is Statistics: Crash Course Statistics #1

Watch the video through **Google Classroom** and **EdPuzzle**.

E. Create a Real World Statistics Portfolio*

The beauty of statistics is that it is all around us. We see examples of good and bad stats (See the graph at the right) every single day in newspapers and magazines, on newscasts and at sporting events and on a host of web sites-- especially those dealing with politics, the economy and the government.

To really see how statistics impacts our lives, a major part of your summer assignment is to develop a **Real World Statistics Portfolio**.
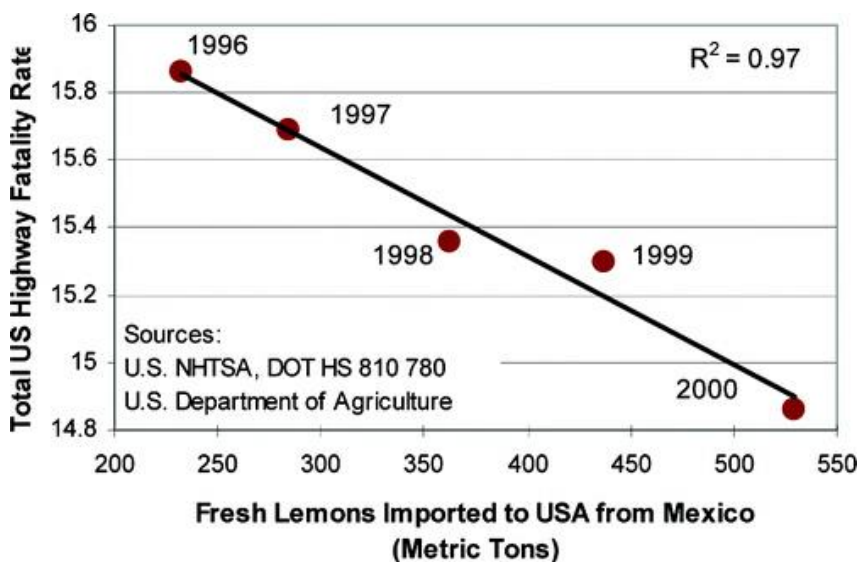
Collect newspaper, magazine, video or internet articles/stories/advertisements that include real-time statistical concepts--both good and bad. These may include things like graphs, charts or tables. They may also report conclusions made as a result of looking at data—e.g., newspaper/internet reports on drug/social/psychology studies.

For each portfolio item, highlight the statistics mentioned and answer the following questions:

a. What is the source of the data? When and where was it published?
b. What was the purpose of the article/statistic/data? Why was it written/produced?
b. Were any conclusions stated? If so, what were they?
c. Is the article/statistics/data convincing? Do you believe the stated results? Explain.

You must have **3 articles** by September from 3 different sources. Each article must be current—that is, it must have appeared in the news from 6/1/20-8/26/20.

Good resources for statistics articles/charts include:

- The Newark Star-Ledger (http://www.nj.com/)
- The New York Times (https://www.nytimes.com/)
- The Washington Post (https://www.washingtonpost.com/)
- Huffington Post (http://www.huffingtonpost.com/)
- Significance Magazine (http://www.significancemagazine.org/view/index.html)
- The Wall Street Journal's Numbers Guy (http://blogs.wsj.com/numbersguy/)
- BBC News Interactives and Graphics (http://www.bbc.co.uk/news/11628973)
- Nate Silver's 538 blog (http://fivethirtyeight.com/)
- Freakonomics (http://www.freakonomics.com/)
- WTF Visualizations (http://viz.wtf/)

Attachment B is a sample of an article and the format that the articles must be submitted in. Each article can be printed out and taped/pasted on an 8.5 x 11 sheet of paper with the required info on the back. Alternately, you can submit the articles electronically through Google Classroom.
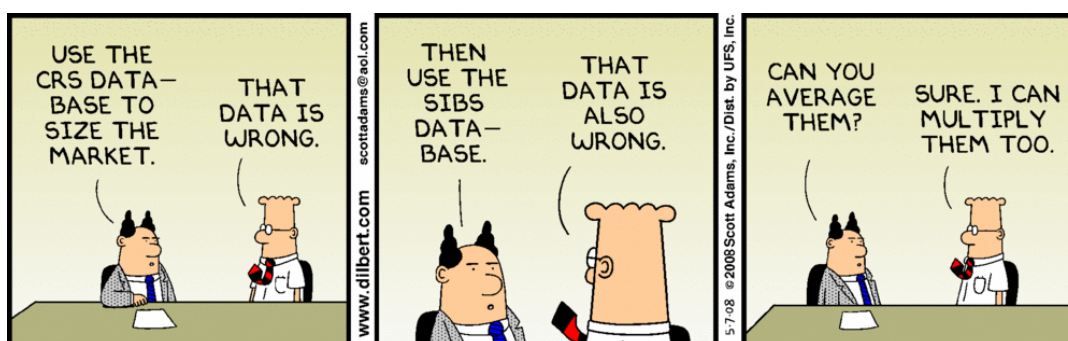
F. Become an Expert on Data Analysis and Density Curves*

Due to New England starting school later than 67% of the United States, we need to get a bit of a head start on the curriculum. So, I'm asking you to do a few things to buy us some time at the beginning.
- Read through Chapter 1 and Chapter 2 of your text.
  - o I have also posted 2 PowerPoints in our Google Classroom, if those help.
- Do as many, or as few of the problems from each section as you want.
  - o All solutions are posted in Google Classroom, so you can check if what you are doing is correct.
- We will review this material before having a test on it the first week or two of school.
- Become familiar with your calculator and the power it wields in this course!
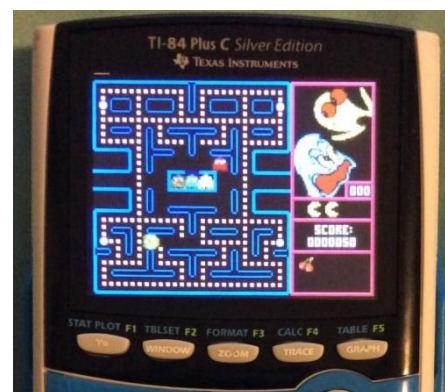
G. Understand Academic Integrity*

Academic integrity essentially means "intellectual honesty": honesty in the use of information, in formulating arguments, and in other activities related to the pursuit of knowledge and understanding. It is a core principle that underpins how we live and learn in a community of inquiry. As members of an academic community, we are entitled to a wide degree of freedom in the pursuit of scholarly interests. With that freedom, however, comes the responsibility to uphold the high ethical standards of academic conduct.

If I were to ask each of the AP Stats students their definition of "Academic Integrity", I would probably get different answers from everyone in the class.

A lot of the work you will be doing in AP Stats involves partners or small groups. In addition, much of the work is done at home. Because of the nature of the course it is imperative that each and every one of us has the exact same understanding of what constitutes "Academic Integrity" as I do.

The goal of this summer assignment is to get you to better understand the concepts of Academic Integrity and Honor Systems in a high school setting.

Assignment

Go to the web page for one of the colleges you hope to/expect to go to and print out a summary their Academic Integrity/Honor System/Honor Code (**1-2 pages max**). Read it, highlight it and be prepared to discuss the following:

- Who runs the honor system?
- What constitutes breeches of the college's honor system?
- What penalties are there?

Watch a short video (15 minutes long) entitled "Washington and Lee Honor System: An Orientation." You can find this video through Google Classroom and EdPuzzle.

There is ultimately a lot of trust the we must place in each other in this class. We all must adhere to the honor code and consistently show academic integrity.

H. Beach Reading/Listening/Watching

If you have the time and want to delve a little further into the world of statistics, try out one or more of the following resources. ***These are not required at all.***

Books
- **Freakonomics: A Rogue Economist Explores the Hidden Side of Everything** by Levitt and Dubner
- **The Drunkard's Walk, How Randomness Rules Our Lives** by Leonard Mlodinow
- **Predictably Irrational** by Dan Ariely

- **Damned Lies and Statistics: Untangling Numbers from the Media, Politicians, and Activists**, J. Best, University of California Press, 2001.
- **A Mathematician Reads the Newspaper**, J. A. Paulos, Basic Books, 1995.
- **200% of Nothing**, A. K. Dewdney, John Wiley and Sons, 1993.

- **Bringing Down the House: How Six Students Took Vegas for Millions**, B. Mezrich, Free Press, 2002
- **Moneyball: The Art of Winning an Unfair Game**, M. Lewis, Norton, 2003
- **Tainted Truth: The Manipulation of Fact In America**, C. Crossen

- **The Ghost Map: The Story of London's Most Terrifying Epidemic—and How It Changed Science, Cities, and the Modern World**, S. Johnson
- **The Tipping Point: How Little Things Can Make a Big Difference**, M. Gladwell, Little, Brown & Co., 2002

Videos (TED Talks)
- **The Freakononics of Crack Dealing:** http://www.ted.com/talks/steven_levitt_analyzes_crack_economics
- **Surprising Stats about Child Car Seats:** http://www.ted.com/talks/steven_levitt_on_child_carseats
- **What We Learned from 5,000,000 Books:** https://www.ted.com/talks/what_we_learned_from_5_million_books

- **How Juries are Fooled by Statistics:** http://www.ted.com/talks/peter_donnelly_shows_how_stats_fool_juries
- **Why Smart Statistics are the Key to Fighting Crime:** http://www.ted.com/talks/anne_milgram_why_smart_statistics_are_the_key_to_fighting_crime

- **Does Racism Affect How You Vote?:** http://www.ted.com/talks/nate_silver_on_race_and_politics
- **Flip Your Thinking About AIDS in Africa:** http://www.ted.com/talks/emily_oster_flips_our_thinking_on_aids_in_africa
- **Three Ways to Spot a Bad Statistic:** https://www.ted.com/talks/mona_chalabi_3_ways_to_spot_a_bad_statistic

Attachment A: AP Statistics 2019 Summer Assignment Checklist

Assignment	Yes, I Did It!	No, I Didn't do It!	Real/Phony Excuse for Why It Was Not Done
A. Buy/Own a TI calculator.			
B. Log into the 2019-20 AP Statistics Google Classroom site by the end of June.			
C. Become familiar with our Stats Book.			
D. Understand What Statistics is All About. Watch the video.			
E. Create a Real-World Statistics Portfolio (Turn in 3 articles).			
F. Become an expert on Data Analysis and Density Curves. Do problems, take notes, watch PPT, check solutions.			
G. Understand Academic Integrity. Watch the W&L video.			
H. Beach Reading.			

On my honor, I have completed the following summer assignments and have turned in the required material on time."

Signed: _____   Name: _____

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Marijuana and race: ACLU finds blacks in New Jersey arrested at 3 times the rate of whites

By Star-Ledger Staff on June 04, 2013 at 10:20 AM, updated June 05, 2013 at 10:35 AM

By Seth Augenstein and James Queally

Black people in the U.S. are nearly four times more likely to be arrested for marijuana possession than white people - despite comparable usage rates, according to an American Civil Liberties Union report released today.

Blacks are nearly three times more likely to be arrested for marijuana possession than whites in New Jersey, and roughly four times as likely nationwide, according to a report released today by the American Civil Liberties Union that showed a deep racial divide in arrests in several counties throughout the state.

While the two races use marijuana at roughly the same rate, the report said, blacks were up to 30 times more likely to be arrested in some parts of the country. In two Alabama counties, for example, 100 percent of those arrested for marijuana possession in 2010 were black, the report said.

Nationwide, blacks were arrested at a rate of 716 per 100,000 in 2010 — the most recent year studied — up from 537 in 2001, according to the report. Whites were arrested at a rate of 192 per 100,000 in 2010, nearly the same as in 2001. The report also said marijuana arrests accounted for more than half of all drug arrests in the country, and roughly 43 percent in New Jersey.

The report was compiled using data from FBI's Uniform Crime Reports and the U.S. Census. It does not specify how police came to make the arrests or if the arrests were made in conjunction with other crimes. However, the ACLU said the arrests were not connected to violent crime.

Alexander Shalom, policy counsel for the state chapter of the ACLU, said the racial divide could be deeper if adjusted for the Hispanic population, which is counted as white in FBI reports.

Still, the data is clear evidence that police across the country unfairly target minorities in order to pump up arrest totals, according to one of the report's authors.

"The war on marijuana has disproportionately been a war on people of color," said Ezekiel Edwards, director of the ACLU's Criminal Law Reform Project.

According the report, blacks in New Jersey were 2.8 times more likely to be arrested for marijuana possession than whites, below the national average of 3.73.
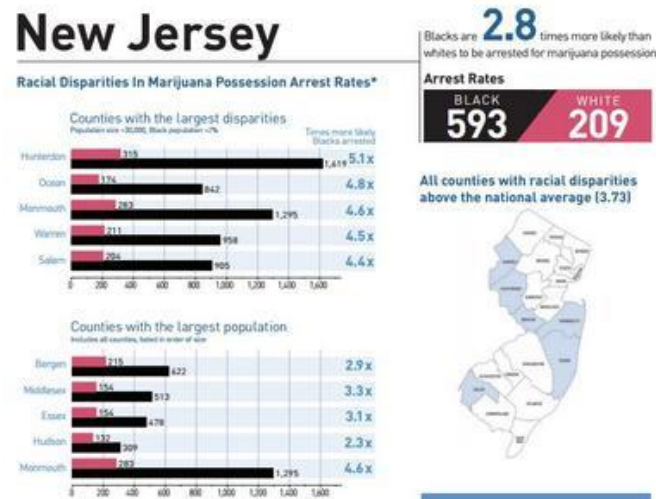
a. **What is the source of the data? When and where was it published?**

   NJ.com; New Jersey on 6/4/13.

b. **What was the purpose of the article/statistic/data? Why was it written/produced?**

   The purpose of the article was to draw attention to the disparate rates of marijuana arrests in New Jersey between blacks and whites. The study purported to show that blacks are more likely than whites in many parts of the country to be singles out for arrest.

c. **Were any conclusions stated? If so, what were they?**

   Primary conclusion is that racism places a significant part in marijuana arrests.

d. **Is the article/statistics/data convincing? Do you believe the stated results? Explain.**

   The article is very convincing although I would like to read the entire report before drawing my own conclusions.