

AP Statistics Summer Coursework

Welcome to AP Statistics! It is my hope that you will find the course both interesting and challenging. First, let's talk about what we will do in this course: we will gather data, display this data visually, formulate hypotheses and test values. We will look for evidence and report estimates, using concepts from probability as the mathematical basis. Throughout the course, you will be creating surveys and experiments in order to gather data. This is where you have the ability to make this course more interesting for *you*. You can put little thought into your survey and find out the average number of Mount cookies consumed by freshmen in a week – and this will be informative, but probably not life-altering. You can look at social justices issues. You can also gather information on topics that are more meaningful to you, whether it involves sports, music, fashion, the Civil War, or the migratory patterns of southern bluefin tuna.

In AP Statistics, your homework will primarily consist of reading chapters and learning **skills**; in class, we will focus more on the **concepts**. For example, you can use your textbook or the internet to learn how to construct a boxplot. In class, we would see how much information we can gather from a boxplot, discuss its advantages and disadvantages over other graphical displays, and decide when to use one. Reading your textbook is extremely important, and frankly, a very good way to get the “feel” of a college course. The sooner you accept this, the better.

Unless you become a teacher, you won't always have summers off, so I encourage you to enjoy summer while you have the opportunity. Read good books, frolic in the surf, whatever. While other AP courses require prerequisite skills or reading, AP Statistics is different. There are, however, always tradeoffs in life. I believe in letting time off be time off, *which means we work bell to bell once the school year starts*. Also, this is a course, not an exam. While I encourage you to strive to do your best on the nationally administered exam in May, the course continues throughout the month and possibly into early June for juniors. I want the majority of your summer work for this course to consist of thinking about topics that will be of interest to you, and (if needed) solidifying prerequisite skills such as how to make a scatterplot on your calculator. Very few college courses (and none that I know of personally) require work before the course, so I strongly feel that if you want to experience the pace and course load of a college class, the work is done during the semester, not before it.

About a week before the first day of school, I will likely reach out to you via Canvas asking you to prepare something for the first day of school, such as reading a chapter of the text – this should take no more than 30 minutes and should be done close to the start of school so that you will remember important information. Throughout the first semester, I will expect you to come to class knowing how to construct a bar chart, or how to use a probability formula. Some students have time in the summer to give these topics a preview, but I don't find that it gives them any advantage. While there may be some vocabulary words that are new, most material that you will learn on your own is review, or at the very least, easy to learn. While we will learn a great deal of new material September through November, there are some areas that should be familiar (mean/median/mode, probability, scatterplots). This will be detailed on Canvas if you insist on looking.

I love to see students apply what they've learned in statistics to other areas. Therefore, you are strongly encouraged to use projects from other classes as projects for AP Statistics – this is most easily done with AP Biology, AP Psychology, or Honors Precalculus. However, I would be happy to collaborate with you on finding ways to use work you are already doing and apply it AP Statistics.

Feel free to email me over the summer with any questions you might have. As a mother of four young children, my life is not all that glamorous so I will likely get back to you quickly. I am excited to see what our group will be like in September, but until then, I hope you will enjoy your summer – I certainly plan to!

Your textbook is *Stats: Modeling the World* by Bock, Bullard, Vellman and Deveaux. We are currently using the 6th edition (AP Edition). I recommend using the physical textbook, but you can purchase an online edition if you want.

** Many students like to get an AP practice book for their own review. If you would like to do so, I would recommend Barron's (any edition), 5 Steps to a 5, or Kaplan.*

This will give you an idea of the math necessary for AP Statistics. If you can answer these questions, you will be fine! This is NOT due to me, this is just to (hopefully) give you confidence in your abilities. I will review it for you if you send it to me.

1. Solve for n and round your answer to the nearest integer, given the following information:

$$m = .08, \quad z = 1.96, \quad p = .27, \quad q = 1 - p$$

$$m = z \sqrt{\frac{pq}{n}}$$

2. Solve for y , given that $x = 5$.

$$\log y = -6.89 + 2.013x$$

3. For the following set of test scores:

78, 84, 88.5, 90, 91, 92.5, 93, 96

Find the

Median

Mean

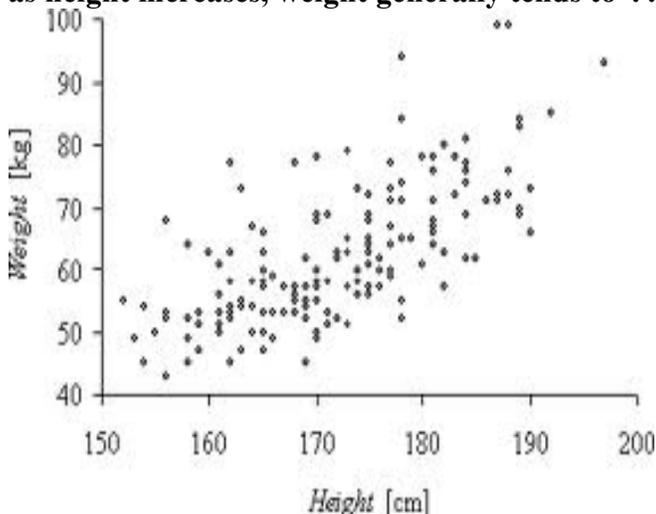
Mode (as a Mount letter grade, such as B-)

Range

4. Find the equation of a line (in slope intercept form) that passes through the given points: (8, 1), (12, -5)

5. In the scatterplot to the right, how would you describe the association (sometimes referred to as correlation) “positive”, “negative”, or “little or no “association”?”

6. What is the relationship between weight and height in the context of the scatterplot? (In other words, as height increases, weight generally tends to . . .)



A company asked a random sample of its employees about pet ownership. The results are shown in the table to the right.

7. What is the probability that a randomly selected employee owns as least one pet?

| | No pet | One pet | More than one pet | TOTAL |
|---------------|---------------|----------------|--------------------------|--------------|
| Male | 5 | 9 | 6 | 20 |
| Female | 4 | 6 | 6 | 16 |
| TOTAL | 9 | 15 | 12 | 36 |

8. What is the probability that a randomly selected male employee does not own a pet?

9. What is the probability that a randomly selected employee who does not own a pet is a male?