

AP STATISTICS SUMMER FUNCS



Types of Data

Quantitative (or measurement) Data

These are data that take on numerical values that actually represent a measurement such as size, weight, how many, how long, score on a test, etc. For these data, it makes sense to find things like “average” or “range” (largest value – smallest value). For instance, it doesn’t make sense to find the mean shirt color because shirt color is not an example of a quantitative variable. Some quantitative variables take on **discrete** values, such as shoe size (6, 6 ½, 7, ...) or the number of soup cans collected by a school. Other quantitative variables take on **continuous** values, such as your height (60 inches, 72.99999923 inches, 64.039 inches, etc.) or how much water it takes to fill up your bathtub (73.296 gallons or 185.4 gallons or 99 gallons, etc.)

Categorical (or qualitative) Data

These are data that take on values that describe some characteristic of something, such as the color of shirts. These values are “categories” of a population, such as M or F for gender of people, Don’t Drive or Drive for the method of transportation used by students to get to school. These are examples of **binary** variables. These variables only have two possible values. Some categorical variables have more than two values, such as hair color, brand of jeans, and so on.

Two types of variables:



Exercises: Answer the following questions and then decide if the data is quantitative or categorical. (Q or C)

	ANSWER	TYPE
1. In what grade did you take Algebra 1?	_____	_____
2. How many CDs do you own?	_____	_____
3. How old was your father when you were born?	_____	_____
4. How old was your mother when you were born?	_____	_____
5. Choose a random integer from 1 to 20.	_____	_____
6. How many siblings do you have? (all , whether you live with them or not)	_____	_____
7. How many cousins do you have?	_____	_____
8. How tall are you (in inches)?	_____	_____
9. How many AP classes will you be taking THIS year?_____	_____	_____
10. What gender are you?	_____	_____
11. Where did eat your last meal? (1 = home, 2 = restaurant, 3 = other)	_____	_____
12. How long have you lived in this area?	_____	_____
13. How far away from school do you live?	_____	_____

Numerical Descriptions of Quantitative Data

Measures of Center

Mean: The sum of all the data values divided by the number (n) of data values.

Example

$$\text{Data: } 4, 36, 10, 22, 9 \quad \text{Mean} = \bar{x} = \sum \frac{x_i}{n} = \frac{4+36+10+22+9}{5} = \frac{81}{5} = 16.2$$

Median: The middle element of an ordered set of data.

Examples

$$\text{Data: } 4, 36, 10, 22, 9 = 4 \quad 9 \quad \underline{10} \quad 22 \quad 36 \longrightarrow \text{Median} = 10$$

$$\text{Data: } 4, 36, 10, 22, 9, 43 = 4 \quad 9 \quad 10 \mid 22 \quad 36 \quad 43 \longrightarrow \text{Median} = \frac{10+22}{2} = 16$$

Measures of Spread:

Range: Maximum value - Minimum value

Example

$$\text{Data: } 4, 36, 10, 22, 9 = 4 \quad 9 \quad 10 \quad 22 \quad 36$$

$$\text{Range} = \text{Max.} - \text{Min.} = 36 - 4 = 32$$

Interquartile Range (IQR): The difference between the 75th percentile (Q_3) and the 25th percentile (Q_1). This is $Q_3 - Q_1$. Q_1 is the median of the lower half of the data and Q_3 is the median of the upper half. In neither case is the median of the data included in these calculations.

To find the median, sort the data in the lists: **STAT**® **2** ® **L₁**. The median is exactly in the middle between the 13th and the 14th value.

Mean_____ Median_____

Are they the same? _____

If not, which is larger? _____ Do you know why?

2. Find the mean and the median for the mom data.

Mean_____ Median_____

Are they the same? _____

If not, which is larger? _____ Again, do you know why?

3. Now compare the two means you calculated. Which is larger? _____ Is this result what you expected?_____ Why/why not?

4. Calculate the range for each set of data. Dad_____ Mom_____

5. Are these ranges about the same? _____ If no, what are some reasons that might cause this difference?

6. Find Q_1 and Q_3 for the Dad data. Q_1 _____ Q_3 _____

7. Find Q_1 and Q_3 for the Mom data. Q_1 _____ Q_3 _____

8. You have now calculated the "Five-Number Summary." This can also be used as a way to determine the spread of a set of data. The five-number summary consists of:

Minimum Q₁ Median Q₃ Maximum

Write the five number summary for the Dad data: _____

Write the five number summary for the Mom data: _____

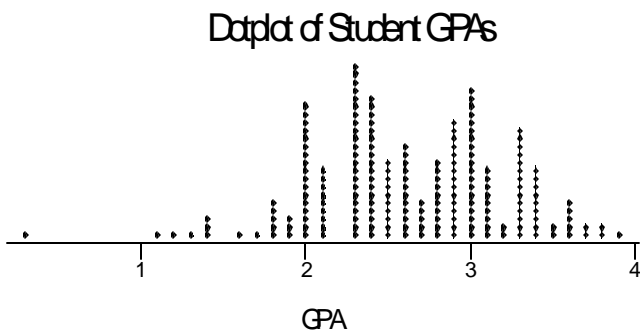
9. Now calculate the IQR for each of the two sets of data.

Dad _____

Mom _____

Graphical Displays of Univariate (one variable) Data

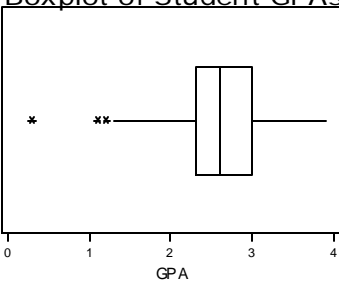
Quantitative Data: Dotplot
 Boxplot (Box and Whiskers)
 Stemplot (Stem and Leaf)
 Histogram



To make a Dotplot:

1. Draw and label a number line so that all the values in your dataset will fit.
2. Graph each of the data values with a dot.
 Be sure to line the dots up vertically as well as horizontally so that you can really see the shape of the graph.

Boxplot of Student GPAs

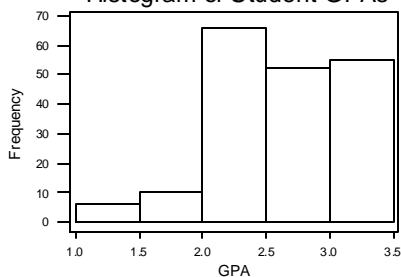


To make a Boxplot:

1. **Draw and label a number line** that includes the minimum and the maximum values for the set of data.
2. Calculate the five-number summary and make a dot for each of these summary numbers above the number line.
3. Draw a line between the 1st and 2nd dot, showing the “lower quartile”; and then draw a line from the 4th to the 5th dot to show the “upper quartile.” These are commonly called the “whiskers.”
4. Draw a rectangular box from the 2nd to the 4th dot and draw a line through the box on the middle dot – the median.

NOTE: In AP Statistics, a “modified boxplot” is used. This shows any “outliers.” An outlier is a data point that does not fit the pattern of the rest of the data. When your calculator or computer software graphs a modified boxplot, an algorithm is used to determine what it takes to “not fit the pattern of the rest of the data.” This algorithm is: $1.5 (IQR)$ away from the “box” part of the graph. (above and below the box). These outliers are shown with dots or stars, or any other small symbol.

Histogram of Student GPAs



To make a histogram:

1. Put the data into ascending order.
2. Decide upon evenly spaced intervals into which to divide the set of data (such as 0, 10, 20, 30, etc.) and then count the number of values that fall within each interval. This number is called the “frequency.” If you divide each of these frequencies by the size of the data set, n , making percents, then you have what are called “relative frequencies.”
3. Draw and **label** a 1st quadrant graph using scales appropriate for the data. Be sure to include a title for the x- and for the y-axes.
4. Graph the frequencies that you calculated in step 2.

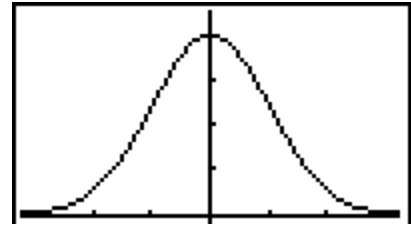
Categorical Data: Bar Graph
Circle Graph

I'm assuming that you already know how to make these two types of graphs.

Assessing the *Shape* of a Graph

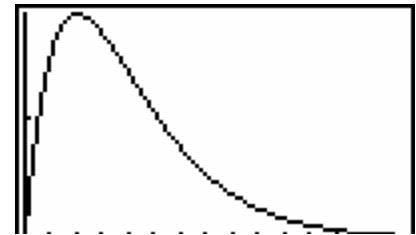
There are two basic shapes that we will examine: ***Symmetric*** and ***Skewed***.

Symmetric: One can tell if a graph is symmetric if a vertical line in the "center" divides the graph into two fairly congruent shapes. (A graph does *not* have to be "bell-shaped" to be considered symmetric.)



Symmetric

Skewed: One can tell that a graph is skewed if the graph has a big clump of data on either the left (skewed right) or on the right (skewed left) with a tendency to get flatter and flatter as the values of the data increase (skewed right) or decrease (skewed left). A common misconception is that the "skewness" occurs at the big clump.



Skewed Right

Gathering Information from a Graphical Display

The first thing that should be done after gathering data is to examine it graphically and numerically to find out as much information about the various features of the data as possible. These will be important when choosing what kind of procedures will be appropriate to use to find out an answer to a question that is being investigated.

The features that are the most important are Shape, Center, Spread, Clusters and gaps, Otliers: **SCSCO**. Most of these can only be seen in a graph. However, sometimes the shape is indistinct - difficult to discern. So, in this instance (usually because of a very small set of data), it's appropriate to label the shape "indistinct."

Exercises

1. Construct a boxplot for each the following sets of data taken from consumer ratings of different brands of peanut butter in the September, 1990 issue of *Consumer Reports*. **Use the same number line for both graphs.** (You could do it this way: Draw a number line. Above this line construct the "Crunchy" boxplot. Then, above the "Crunchy" boxplot, construct the "creamy" boxplot.)

Crunchy: 62 53 75 42 47 40 34 62 52 50
 34 42 36 75 80 47 56 62

Creamy: 56 44 62 36 39 50 53 45 65 40
 56 68 41 30 40 50 56 30 22

- a. Find the range for : Creamy _____ Crunchy _____
- b. Find the median for: Creamy _____ Crunchy _____
- c. Looking at your boxplots and comparing the medians what type of peanut butter do consumers tend to prefer?

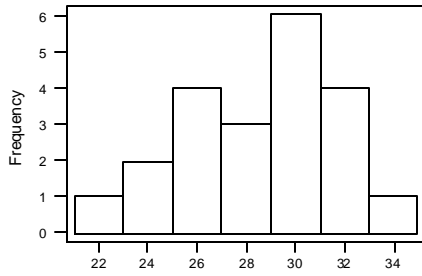
2. The following data is taken from the *Statistical Abstract of the United States* (112th Edition). These are the ages of drivers arrested for DUI from a random sample of size 50. Make a stemplot to show the distribution of this age data.

45	16	41	26	22	33	30	22	36	34
63	24	26	18	27	24	31	38	26	55
31	47	27	43	35	22	64	40	58	20
49	37	53	25	29	32	23	49	39	40
24	56	30	51	21	45	27	34	47	35

- What is the shape of this graph? _____
 - Using your stemplot, find the median of this data. _____
 - Which data display is better - a boxplot or a stemplot? _____
Why?
3. For the following graphs, find the shape, center (just do the median), and spread (find only the range). If there any other notable features evident in the graph (clusters, gaps, or outliers), then say where they are. Otherwise do not comment on clusters, gaps or outliers.
- (Note: To find the center of these graphs, use the frequencies found on the y-axis. Count how many are in each bar. Add these up and divide by two. This tells you where the median is located. Which bar is this value in? That's the median. For graph A, $n = 21$, so the middle value is 10.5.

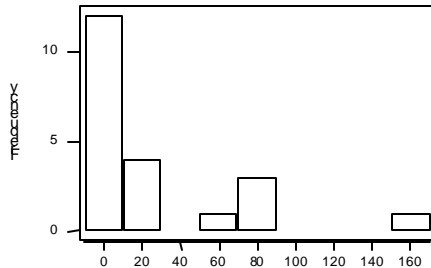
Starting with the first bar count 1 + 2 + 4 + 3 + 6... So the median is in the bar that contains the 10.5 value (bigger than 10 anyway). That's 30. So, the median is 30. To find a rough estimate of the mean, take the frequency for each bar and multiply it by the value along the x-axis for that bar. Add these up for all the bars and then divide by 21. You get the mean = 28.571.)

A



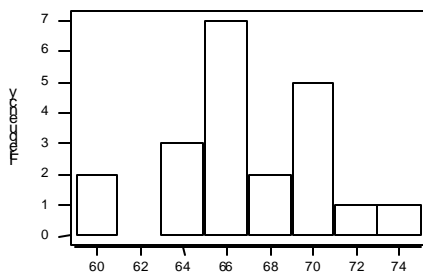
Shape _____
 Center _____
 Spread _____
 Clusters, Gaps? _____ Where?
 Outliers? _____ Where?

B



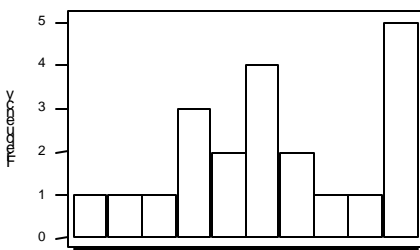
Shape _____
 Center _____
 Spread _____
 Clusters, Gaps? _____ Where?
 Outliers? _____ Where?

C



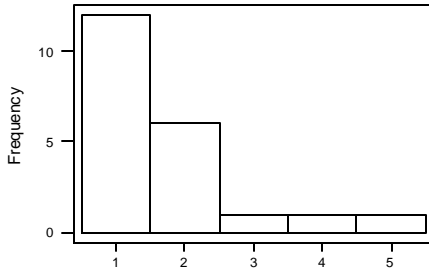
Shape _____
 Center _____
 Spread _____
 Clusters, Gaps? _____ Where?
 Outliers? _____ Where?

D



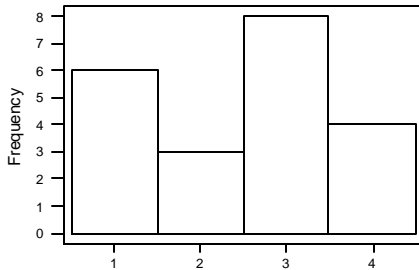
Shape _____
 Center _____
 Spread _____
 Clusters, Gaps? _____ Where?
 Outliers? _____ Where?

E



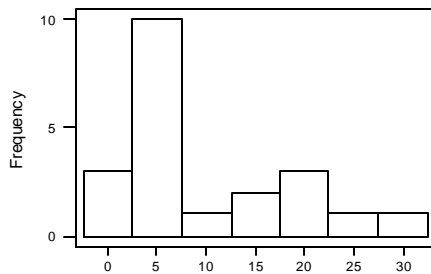
Shape _____
Center _____
Spread _____
Clusters, Gaps? _____ Where?
Outliers? _____ Where?

F



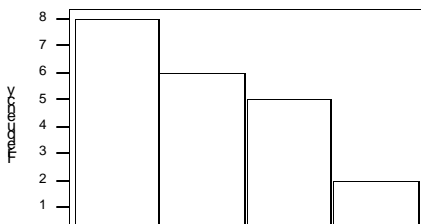
Shape _____
Center _____
Spread _____
Clusters, Gaps? _____ Where?
Outliers? _____ Where?

G



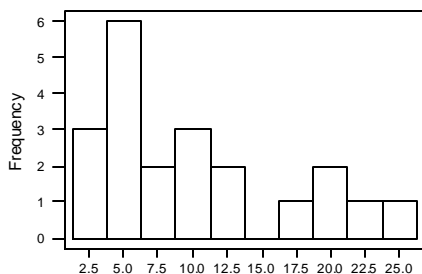
Shape _____
Center _____
Spread _____
Clusters, Gaps? _____ Where?
Outliers? _____ Where?

H



Shape _____
Center _____
Spread _____
Clusters, Gaps? _____ Where?
Outliers? _____ Where?

I



Shape _____
Center _____
Spread _____
Clusters, Gaps? _____ Where?

Outliers? _____ Where?

4. Use the following list of variables to identify which of the graphs in Question 4 **could** be a graphical display of the answers for a typical class of students. Write the letter of the correct graph in the blank provided. There are more variables than there are graphs, so don't worry if you have extras.

Variables

- Grade when a student takes Algebra 1 _____
- Average # of CD's you own _____
- Age of your father when you were born _____
- Age of your mother when you were born _____
- Age of your stat teacher this next year _____(guess, even if you don't know me!!)
- # of siblings you have _____
- # of cousins you have _____
- Your height (in inches) _____
- # of AP classes you will be taking this next year _____
- How long you have lived in this area _____
- How far away from school you live (in miles) _____
- Amount of change in your pocket on the first day of school _____

6. **Reading Assignment:** Read the following letters written to you by some of the AP Stat students in the year 2003 - 04.
7. **Writing assignment:** Write your own letter about what you are going to do to ensure success this next year in this and all of your AP classes.

On the second day of school, you will be given a "summer packet" test. Not only will you be tested on all material in this packet, but the packet must also be turned in and complete (100 points). The test will count for an additional 100 points. This is material that is covered in the first chapter of the textbook and is very important.

Questions???? Email me here: tcfrench@earthlink.net or go to this website for a link to my email and for any extra instructions that I might want to give you over the summer. I will also include a supply list when school is about to start:

<http://schoolnotes.com/22015/tfrench.html>

Letter 1

To future AP students,

This past year as a senior I have few regrets. I was able to get into a college I really wanted to go to, I did well in school even though it was senior year, and most importantly, I was able to enjoy my last year of high school. There is nothing hard about being able to do well and still have fun as long as you are prepared to put in only a bit of work.

Don't be too worried about much at all your senior year besides keeping your transcript looking good for your colleges, even if you are applying early decision. If you are applying early decision as I did, be sure to send them your first quarter grades if they are good. This is one of the regrets I have of this past year because the 2 months of hard work I put into first quarter didn't get sent to my school. In the end it turned out that it didn't make a difference that they weren't sent, but trust me, applying early and being done with it makes your senior year much more relaxing.

For some reason, most people come into their senior year thinking that nobody is going to be working. This is not true, especially if you are in AP classes which all of you are, so make sure you keep up in all of your classes, because especially in your AP classes like Statistics you will need to work three times as hard to catch up to the rest of the class. Like I said before, all you need to do is make sure you don't slip too far into the world of senioritis and skip classes and homework assignments and you will do great.

Some tips for staying alive through the year in Mrs. French's class would be to definitely make sure you get off to a good start by doing this packet and get a solid base from which to build on throughout the year all the way through the AP exam by putting forth some effort into homework. When May comes around, which is definitely going to be here before you know, you will definitely see whether or not you have been doing this throughout the year because AP exams are definitely not something you can cram for. The only hints I can give to succeeding in this class would be to pay attention when you are going over example problems in class because there is not a better way to learn them. I found that when I didn't pay attention or dozed off during a lesson, I didn't get how to use what they teach you in the book. However, the number one thing you must be sure to do is get out of the mindset that this is Statistics and is the easy way out of doing a hard math your senior year. This is not true! I am taking calculus also this year and my grade has consistently been worse in statistics than in any other class this year simply because I didn't study as much as I should have.

Statistics is a very application based math class that deals with a wide variety of topics ranging from the most concrete math skills such as finding means and medians like in seventh grade, to more abstract mathematics such as designing complex experiments to test hypotheses. But don't worry, Mrs. French knows what she is talking about and if you just pay attention and put forth some effort you will succeed, even if your test grades starting halfway through the second quarter begin to drop when you start reaching the hard stuff, an yes it is hard so continue to stay on top of things. You will be done with college applications, so what else do you have to do with your time besides Statistics homework? In all seriousness, do not get bent out of shape if you happen to do poorly on a test or two because Mrs. French's tests are much harder than the AP exam and it will seem to be a breeze compared to what you have done all year. But just remember the most important thing about your senior year. Have fun.

Sincerely,
Brian Ball

Letter 2

Dear upcoming AP Statistics student,

Let me guess, you're probably taking this class because you think that it will be an easy way out of taking calculus but it will still look good on a college application. Well guess what... you're **WRONG!** This class is **HARD!** Be prepared to do some serious work in this class, and even be prepared to fail some tests. For the rare few of you who think you can skate by in this class, think again. Just because you could get by slacking off in other classes doesn't mean you can do it in this class. Mrs. French is an awesome teacher, but that won't matter if you don't pay attention to her. I'm going to tell you exactly what needs to be done if you want to pass statistics, and I'm going to tell you what not to do if you don't want to fail.

First off, I'd like to congratulate you for making it to your senior year (if, by chance, you are taking this class as a junior, you rock! I took this class as a junior and had the greatest time ever. Mrs. French is nice to all her juniors.) This year is still an important year as far as preparing for college goes. In addition to making deadlines and assembling your application, you also have to keep your grades up and still do well in your classes. That means actually working. Senioritis is a nice excuse for a BS class like film study or something, but it won't get you past the first quarter in AP Statistics, and seeing as how it gets **REALLY** hard third quarter, I'd suggest finding a new strategy. Or, better yet, I'll give you one so you can save the trouble of overworking your fragile mind: **DO YOUR WORK.** Homework, class notes, and review packets should never be optional. Always do them, and always ask for help if you don't understand something. If you don't, then you will fail the test, and the test after that, and the test after that, and every other test until you learn the material from the first test you failed. That's because everything in this class is cumulative and will be used in every chapter. Therefore, it is crucial that you know everything and do exactly as Mrs. French tells you.

Another important strategy is **PAY ATTENTION IN CLASS.** Not only is this class awesome, but it'll also teach you everything, and before you know it you'll be a statistics guru. Unlike a lot of teachers in this school that don't teach you jack and just pop in movies every class or hand out an infinite supply of worksheets, Mrs. French actually teaches you stuff. Surprised? You shouldn't be. This is an AP class, and Mrs. French cares about your grade on the AP exam more than you do. By the way, don't take the exam lightly. It is a college level exam meant for students who think they know what they're doing. It is not an easy, BS test. The only way you will have a chance to pass this test is to listen in class. Mrs. French does practice problems in class and introduces new concepts on the board in a way anyone can understand. She is one of my best teachers and she knows what she is doing (when it comes to statistics, that is). But seriously, if you can muster the urge to stay awake and not play calculator games all day, you will do fine in this class.

My final words of advice are **DON'T STRESS.** I mean really, this is your senior year, and who wants to go through their senior year in AP Statistics stressing the whole way through? If you worry too much in this class, you will hate it, and all the M&Ms in the classroom won't change your mind (you've probably read this a million times already, but I will say it too: Mrs. French gives out M&Ms.) at the same time though, worry just a little bit. Your first quarter will seem particularly easy, luring you into a false sense of security. Then, when third quarter eventually rolls around, Mrs. French will start talking about significance and p-values and all this complicated gibberish also known as real statistics. She will also demand that you memorize paragraphs she made up word for word, threatening you with a big red F in this class if you don't. Well I've got some news for you: she's not kidding! Third quarter should be the time when that light bulb in your head that has been barely glowing all year gets a huge surge and really turns on, not the time it

should just turn off for good. But don't stress. Enjoy the class, the free M&Ms, the whole month of down time after you take the AP exam, and one of the best teachers you'll ever get, and some day you might end up working for Mars® finding the true proportion of brown M&Ms.

Good luck,

Matt Barry

Letter 3

Mrs. French's AP Statistics class of 05',

If you're enrolled in this class you're a step ahead of any student taking a calculus course at Lake Braddock, it may not seem that way now, but come springtime you'll appreciate the level of difficulty of this class. When I first enrolled in Statistics I did so because I wasn't interested in advancing on into Calculus, a course that's held an almighty demeanor over me since grade 8 and my algebra 1 days. If you're taking this class for the same reason I did (I was too chicken to take calc.) don't think that you're taking the easy way out or that calculus is any more important than Statistics, they're simply different branches of mathematics with different views and opportunities. That said, let's get into Mrs. French's AP class. You may think from previous experience in advanced placement classes that you can steal a B and then nail on that extra 0.5 without ever opening a textbook (If you're looking for those kinds of classes try the history department), but you can't slide through this class treating the overhead projections she writes down like a motion picture. You may wish that you had more slack in this class; show up later and not be marked and interrogated, so what if you write "Proves" in a hypothesis test (you'll learn more about that later), and lastly thinking you can exchange monetary support for leniency on tests (It doesn't work, it's been done, and she's rich anyway...how do you think she affords cases of m&m's at a time). I appreciate, and you will too, the level of difficulty that comes with this class. I say this because; doing well in this course means you've earned it, Mrs. French won't give you a grade you don't deserve, so if you do well in this class you should be proud of it, cause you've earned the right. Now the specifics; tardies won't help you and there's never mercy (unless she's not looking, I've had that happen once the whole year). The best advice I can give you is to stay on top of the material in the beginning of the year, doing this lays the cornerstone for later material (stuff that actually pertains to Statistics; z-scores, chi-squared, linear regression, and significance tests). I'll give you a heads up now, the hardest exam you take comes at the end of the third quarter (make-or-break your grade, how convenient) it's filled with hypothesis tests and confidence intervals (like 4 free-responses, 25 multiple choice, and a bonus you'll never get to). I'd be confident making the statement that this exam is harder than your final exam or any AP exam you'll take at the end of the year. In preparation I recommend you stay after in study groups and ask questions, take your own notes on every equation and condition through the chapters, and lastly a little prayer couldn't hurt. Once 3rd quarter's over (you take your final exam at the end of 3rd quarter, don't ask why) and you've taken the AP test you've got nothing to worry about for the rest of the year. So putting in the time 1st quarter and maintaining an understanding of the course material (notes and more notes) really pays off towards the end of the year. Oh, and it doesn't hurt to sit next to someone like John Gyourko who's awake when you're not, and doesn't have the slightest clue what a C or lower looks like.

All the best next year,

Jason Bondurant

Letter 4

2005 AP Statistics students,

Taking AP statistics was the most time consuming class that I have ever taken. It is obvious, because this is an AP course; that you will have an extensive amount of homework, do not let yourself fall behind. Homework is worth little points in this class, but when completing your homework (and not just copying from the back of the book), you will have a better understanding of the chapters and a more overall prospective on what they are looking for. Knowing concepts and equations is not the key to getting an 'A' in this class. The only way to do well on the AP exam and on Mrs. French's tests is to have a full understanding of statistics. You must be able to understand what the problem is looking for. Understanding all conditions is important, and learning how different tests for each problem vary and when to use each.

First quarter should not be your view on how the year will be. First quarter Mrs. French will give you grades on your packet, a test on the packet, and various articles you will have to read and write papers on. Those are easy grades and do not expect too many freebees like that. For second and third quarter expect your tests to be your grade. Mrs. French will give you no freebees these quarters. If you do not stay on your homework then you will not do well on the tests. Many of Mrs. French's questions are from the homework and the review packets that she gives. It is wise not to take these for granted. Her multiple-choice questions are hard and you must have a full understanding of everything you have learned to be able to get them right. She does not do this to be mean or unfair, she does this because the multiple-choice on the AP exam are just as hard as her.

Paying attention to the overhead is really important. She will go over key points and summarize the book from the overhead. This does not give u an excuse not to read the book, but it does help in understanding what the book is talking about. There will be days when you dread coming to this class, especially on test days or even the days when you find out how you did on tests, you must come though because she will go over topics and you will do bad on the next test if you miss review. Studying with someone is important. Find someone in your class that you get along with but will not goof around with. If you study alone, you will find things will distract you, but with another person, you can help each other stay on task.

If you have a job be sure that you do not work every night, and take off the days before AP statistics. It is hard to juggle working while knowing in the back of your mind, that you have no idea what the test is on tomorrow. There will be some classmates that will never have to pick up a book and just listen in class and get an 'A'. That is great for them, but for the rest of us, if you do not do everything in your power to do well, you won't. This letter probably sounds like something your mother would tell you, but its true and I am warning you now, if you can not handle studying math for extended periods of time do not take this course. If you are looking to do well in an AP class but not have to put in time, don't pick this class. Many of my friends dropped this class after or during the second quarter. You would not want to write to the colleges you have already applied to telling them that you dropped your AP Statistics class because you could not handle it. If you do well in this course you will feel a sense of accomplishment. This is not an easy course and from what I have heard from my friends in college, it is a lot harder then the course in college, but if you are ready for a challenge then this class is very rewarding. Mrs. French will teach you a lot about statistics, and now when you hear about statistics on the news you will be able to analyze what they are talking about from a more educated view. This course was anything but easy for me, but I am still happy I took it. One more piece of advice for this course, from the first day of class you should be studying for your final. It was the hardest test any of us had taken all year. Do not wait until the week before to study. You will complain about it for days after you take it and it will ruin your day when you find out how you did. To make up for this horrible grade, do well during the year. You will be thankful you did. If your parents get upset about your grade, be sure to show

them this letter so they know that you are not the only one. This is another one of those things that Mrs. French does to get us ready for the AP exam, so taking this out on her is not a good idea. She is more helpful than you think, it is just a painful realization when it shows up on your report card.

Lori Lundgren-Soter

Letter 5

Isabel Gibson
May 13, 2004
AP Statistics Letter

Dear Future Student,

READ THIS!!!! I didn't read my letters and I wish I had because they had the same advice I'm about to give you that would have saved me from my humiliating F's so **READ READ READ!** Get out of the class **NOW** (joking). There's one thing you need to know for this class. Work hard starting at beginning, don't just skate by until you realize that you just might need to know all this for the end of the year. And trust me you don't want to start cramming at the end, which, speaking of the end, is what all your preparation and hard work will prepare you to survive, you absolutely must listen when she says to memorize and listen, you seriously need this stuff for tests and quizzes. **MEMORIZE THEM!!!!** You won't pass anything if you don't. Learn what needs to be used for what, that was a toughie for me.

Don't let her sweetness fool you. She will crack down on you and show you no mercy. Do your homework and study. Thank her for all the M&Ms and Skittles. These themselves are worth the class... so come to class if not for the sake of the knowledge.

Make sure you keep up with homework and assignments. It's not an overload unless you don't do it. If you concentrate on trying to get the points for one assignment of homework you are missing super important information and in like two days you're way behind. Watch out for senioritis. Seriously, about the time it kicks in the work starts. This is when you need to work your tushy off. It's super important that you don't give up in this class at least.

Don't bother with memorizing formulas, it's even more or less futile to figure out *why* you are doing all these tests and probabilities, if you get too caught up in that then you lose sight of the fact that you only need to know what test, what conditions and what formulas which are already on a huge list so you only have to recognize them, so don't read too much into the questions and you should be alright.

Take Notes!!!! She's not writing on the overhead for her own sake (because really she hates to waste that bulb) so it's important. **WRITE IT ALL DOWN!!** The more you copy her problems the better you do because if you're copying whatever she's writing, it's obviously correct and you see how to do the problems and you get into that mindset where you actually think you understand all of it, which instills confidence and **BAM!!!** You have an A in Stat (this advice isn't given from experience, rather from mistakes).

The most important thing I can stress is doing what she says. She's not here to waste our time so when the words, "It's important" come out, **IT'S IMPORTANT!!!!!!!** Memorize conditions (you'll know what I'm talking about soon enough); memorize that dang paragraph and **DON'T GIVE UP!!!!** If nothing else there's that precious extra .5 and bag of M and M's waiting for you, so congrats for choosing this class and I hope you listen to this advice because it'll help you!

Letter 6

Dear AP Statistics Students,

You're probably wondering what to can expect from your Statistics class. As you embark on the year, you probably have a million and one questions about how hard it will be, how much homework you'll get, etc. And it's my job to give you the answers.

Many people come into Statistics with the anticipation that it will be an 'easy AP'. Having never taken Calculus, I can't say whether it is harder or easier than the other AP maths. What I do know, however, is that Statistics can be a challenge.

There is a lot of homework, and I suggest that you do it all. It enriches your understanding of the information, and generally allows you to do better in the class. Not to mention that it helps your grade. Also, I suggest that you memorize the paragraphs that you will be told to learn in the third quarter. The sooner you learn them, the better.

But there is a lot of fun involved too. Firstly, Mrs. French is a genuinely nice teacher, who likes to chat with her students and displays an interest in their lives. This helps the learning environment A LOT, as I'm sure you know by now. Also, as she introduces topics, Mrs. French will assign demonstrations and labs that involve statistical analyses of candy (that you will be able to eat afterwards) as well as paper airplanes, an various other items that can make the class more lively and fun.

So yes, the class is hard, and yet it is not impossible.

The most important thing to remember is that you can do anything you set your mind to, and that you will achieve exactly what you aim for. That is to say, if you are enrolled in four or five AP's and all of the sudden are wondering if you are capable of being in the school play, the literary magazine, the marching band, and a host of other activities while maintaining a high GPA, your sanity, and the love and respect of your friends and family, the answer is simply: Yes. This can be done. It is also to say that if you don't believe that it can be done, and decide instead to let one or more of these things slide, you will achieve exactly what you aim for – you will not succeed if you give up. So aim for the very best, and you'll get it.

There is a ton of stuff on your mind now, and will continue to be throughout the year. Whether it is applying to or waiting to hear from colleges, studying for other AP's, or just living your life. But that does not mean that there is no room for Statistics. You have plenty of room if you make it.

Statistics is actually an interesting and fun class. I was dreading it because I am definitely not a math person. But I don't think that you have to be one for this class, because so much of it is conceptual, and there is such a great need in this class for the ability to express yourself, to explain what the numbers you have gathered mean. So, you can be successful and enjoy this class even if math isn't really your strong point.

An understanding of Statistics will be useful later in life, when you read newspaper articles or other sources of information. You will be able to scrutinize the data in studies with greater care, to know how much you can trust the information you are given, and to know how significant and important the data is. This is an important skill.

So, I'm glad that you decided to take AP Statistics, and I know that you will have a great time, provided that you strive for success, and you do the homework. Trust me – this year will be great!

Sincerely,
Jessica Kirzner

Letter 7

Dear Student entering AP Statistics in Fall 2004,

I hope that you have enjoyed your past years of high school because that's the end of any fun you'll ever have again! Actually, I lied – senior year is a joke, and AP Statistics is a great class that you'll enjoy. It's one of the AP classes with a rather light workload, yet is not in any way boring. You made the right decision to sign up for the class, whether it's because you're a genius and did Calculus last year, or just because you had some extra space in your schedule. I can't predict whether you'll find the class easy, especially as the year progresses, but as long as you keep on your toes and pay attention to Mrs. French's lectures, you should be fine. Although I never did stay after school for help, I know from my classmates that, if you ever are having trouble with the class, do yourself a favor and get some help from the teacher. Mrs. French is really nice and actually does teach and lecture very well. If you listen to her the first time she discusses a topic, she goes slowly enough that you can understand and learn more related information. You won't even realize how much information you're learning, but I'll tell you now—she's going to give you a “formula sheet” in the beginning of the year that you keep throughout the entire course. When you first look at it, it will make statistics seem like the hardest thing ever, and you'll wonder how you'll ever memorize everything and remember what all the symbols mean. Then she'll tell you that you can use the formula sheet on every test, including the AP exam in May. As for the symbols, everything connects, and the textbook makes things very easy to comprehend. There are only very few themes of the course, and everything branches from them, so just learn the basics right, and you'll be on your way to success.

Each homework is only two points, and, to put you in perspective, tests are 100 to 200 points. However, do your homework, because, for one thing, the points do add up, and even missing two homeworks can make your grade lower than what you want it to be, and secondly, because homework is a chance for you to test yourself on your understanding of what is going on and what you need to stress for studying for the upcoming test. Mrs. French also often assigns homework for topics that the class will cover the following class (the day the homework is due), so it's easier to understand her lectures if you already spent one and a half hours working on problems that pertain to the subject.

Make sure you do everything perfectly. On tests, show every piece of thought that you have. Never *assume* that she knows what you're doing. Write all the givens, everything in the middle, and the conclusion. Once you get to chapter 9, you'll learn two template paragraphs, which you **MUST** memorize thoroughly. If you don't, you will suffer on every test, quiz, and the AP exam. They're really not that bad; just sit down and memorize it!

You get through the textbook by the end of the third quarter. The fourth quarter is just review for the AP exam and the end-of-the-year project. Get your grades high in the first two quarters, while tests are not too hard. Don't lose points by simply not showing enough work. You don't want to end up struggling in the third and fourth quarters to bring up your low grades from the beginning of the year.

That summer packet test that this letter is in is a big chunk of your first quarter grade – I remember it because I did pretty badly on it, and I spent the first quarter trying to bring my grade up because of it. If you're a rising senior, you probably had your worst year of sleep last school year. Now that you're a senior, you should catch up on your sleep. If you're a sophomore, best of luck to you with getting sleep this year. Expect 4 to 6 hours of sleep a night! This is not a time-consuming class as long as you keep up with the homework and pay attention in class.

Sincerely from a former student,
Jonathan T. Segal

Letter 8

Dear NEW and FRESH statistic students:

(WaRnInG...you won't be that way for long).....

Most of you are probably seniors, some juniors and to those of you that are sophomores: you're just too smart. WELCOME TO STATISTICS. Like me, some of you probably took this route of statistics to get out of taking the lethal class they call calculus. So you think you took the easy route. Right? Wrong. Good luck. This class will be far from easy, but at the same time you will actually have a good time. I was a senior ready to get out of that seat you are sitting in and yet I still had a good time. Here are a few non-school related pointers to help you through this year. Trust me. They will help. Ms. French is an awesome teacher but it's pretty easy to get her sidetracked, so have fun with that one. Also, exercise exercise exercise. You will gain weight in this class. Okay, not really but sometimes it felt that way. Ms. French loves to do statistical projects with M&Ms, skittles, jelly beans, etc. If you miss lunch: no problem. She'll take care of you. (By the way, the blue tin she has next to projector is stock full of candy! Be good and she'll share.) Also, don't talk a lot to the people you are sitting next to unless you are purposely trying to get away from them. From personal experience and a number of seat changes later, I realized that Ms. French will move you. So be smart and just be quiet for the hour or so.

Now to the stuff that really will make or break this year. For starters, don't be late to class. Ms. French is serious about marking you tardy even if you are two seconds late. I know that sounds harsh now, but you get used to it. The curriculum in the beginning of the year and the first few chapters is quite simple to understand and the homework is really easy. First quarter will be the easiest of them all. Then, it just gets harder and harder. I made the biggest mistake by attempting to sleep in class, not paying attention to the days lesson, writing notes to the girl next to me and racing through homework that in actuality I didn't get at all. I always crammed the night before the test and had to learn the whole chapter. In actuality, I should have been learning the concepts throughout the chapter. (By the way, in regards to that thing we call homework: do it. Ms. French checks it everyday. EVERYDAY.) When Ms. French is going over the lesson pay attention. I can't emphasize enough how important and easier it will be for you if you stay up to speed with her. It wasn't until the middle of third quarter that I realized this! Fortunately for me, that was when the really really really hard stuff hit us like a brick. Otherwise, I don't think I would have passed. Do the review sheets before the tests. Ms. French's review sheets are so helpful. The concepts of exactly what you need to know are spelled out for you in that packet that will save your life the night before the test. I can't imagine the headaches I would have gotten without those packets.

Now, I am sure there are some of you who are hoping to cruise through this class and do, well, basically nothing. You can't. Well, you can. But you will fail. The majority of the class that does try will at one point or another have a big F on their grade report. But don't worry about that. It can be pulled up. I was taking a number of other AP classes along with this one. Even though I had to work the hardest in this class and even though I stressed and worried about these tests days in advance (you call me crazy now but trust me, you will do it!!!!) this was definitely the best class I took this year. Ms. French knows exactly what and how to teach you to prepare you for the quizzes, tests, and in the end the AP exam. You have nothing to worry about if you are willing to put the time into this class that would be expected of you if you were at college. After all this is an AP class and that is what Ms. French will expect of you. There is one thing that you need to remember this year. Eat, drink, and study stat. GOOD LUCK

Chelsea Zimmerman

Letter 9

Dear AP Students,

Your senior year is here! After, for some of you, 6 years of LB, your last year of hard work, dedication, and fun times at this school is beginning. All of these years of tons of homework to make the grades for your transcript hopefully will pay off when you start applying to colleges. A hint: apply to as many schools as possible, even the ones that your parents really want you to go to, even though right now you wouldn't go there over your dead body. The reality is, you probably will change your mind about the college of your dreams, as well as your major, classes you want to take, etc.

I was dead set on William and Mary until right around Christmas vacation when I decided to really look at the 4 other schools I was also applying to. I decided, when the admissions letters came in, that William and Mary really wasn't the school for me. You just never know for sure, so keep your options open; you probably won't know for sure what you want to do until your junior year in college. You might not need all of your options, but at least you'll have some. So apply to tons of different schools in different cities, states, and, if you're not, look in-state for college (VA has great schools even if they are closer to home!).

To make your transcript even better, you decided to go the easy route and take AP Statistics instead of AP Calculus to get a better grade. You've made the right choice. That's not to say that Stat isn't hard—it is A LOT of work. For me, and most of my friends, however, Stat makes sense; it's very common sense and once you work around a new concept, it's very step-by-step after that. I mean that it's applicable to so many different areas that it's interesting to learn (if that's possible!).

Mrs. French definitely makes it possible to be interested while learning. She understands that it is senior year for most of you and you will work a lot with M&Ms and the scenarios she comes up with are lots of fun. That's not to say that the class is all fun and games. After the M&Ms comes the understanding part of the class. All the help I can give you is this: take notes and do your homework. The notes are for studying for tests, some of which inevitably you will fail; the homework is to boost your grade after you fail those tests! She checks homework every day and it is SUCH an easy way to raise your grade. This is the first time I'll actually ever say this, but the homework in this class actually helps you understand what is going on.

I read this advice last summer and I sort of blew it off, but seriously—first quarter and second quarter are not horrible; easy if you could say so. The workload takes some getting used to, but the tests and the concepts are not difficult. Third quarter you will, at some point or another, have a failing grade. For someone who has never even had below a B on an interim, I flipped. Don't worry. Get used to staying after before tests—she is SOOO helpful. More times than not, she will even tell you what the extra credit problem will be on the test, and then go through how to do it with you! STAY AFTER and relax, your grade will be fine. LEARN THE PARAGRAPHS. You don't understand what this means, but those three words will SAVE your third quarter, and fourth quarter for that matter, grades.

Take notes, listen, do your homework, and Mrs. French will do everything that she can to make your Stat class better. She knows Stat like the back of her hand, and she uses great examples to help you understand. Listen to her! She knows what she is talking about and you will be so prepared for the AP exam come May. The multiple choice parts of her tests are hardest, but then the AP exam multiple choice questions seem easy compared to hers.

As for your senior year, definitely work at your classes, but remember that school is not your life and it's nice to sleep once in a while. Learn that the things you thought were so important junior year might not be so important after all. Spend some time with your family—in a few months, sooner that you realize, you won't be seeing them at all. Learn how to manage your time so

you're not flipping out when college admissions and acceptances and AP exams and SOLs come around May. Don't take everything so seriously that you hate coming to school. This is your last year—make it one to remember!

Sincerely,
Madeline Kristoff

Letter 10

Dear AP Statistic Students,

I'm not sure what you've heard about this class, but by this time next year you'll be nostalgic for the good old days in AP Statistics. But before I go on, let me tell you up front that this is definitely a challenging class—not so much in the math but more so in committing yourself into a yearlong study on the *concept* of statistics. If you're the eager and ambitious junior (like I thought I was at one point...), you'll be so satisfied when this course is over. You would have learned more about applying math to the real world from your study of statistics than from all your other math studies put together. As for seniors, all I have to say is...I've already taken this class, but know that I am sitting in my other "easy" classes thinking of you guys. Yes, of course I am.

So, I was sort of scared on my first day of statistics of both the teacher and the math. Mrs. French seemed like your no-nonsense and super-strict kind of teacher and the math seemed a little boring (you're probably sick and tired of means and modes by now). But, believe me this all changes. As the year goes by, you realize how great both Mrs. French and statistics is. Really, which one of your teachers gives you candy (not the oh, here's one tootsie roll, but more like here're the tootsie roll boxes)...on a *regular* basis? Yes, that is exactly what I thought. M&M's and skittles are the specialty, and when you're having a bad day, Mrs. French will always make your day better by offering you some candy from the candy jar.

As for the class itself, it will move very quickly, but if you discipline yourself you will be well prepared for the AP test and that is what you want! Take notes, pay attention in class, participate in the activities, do ALL YOUR HOMEWORK and review packets, and study well for tests and quizzes (the tests will quickly become 300 point tests, which is sort of scary too). Falling behind or not doing your homework will definitely hurt you. So make sure you get after school help or form study groups. You can't learn statistics in one sitting, it is a culmination of a year's long practice and learning!!

Throughout the year, you'll struggle and fall into slumps where you feel like giving up. But, every time this happens, no need to worry—there is a cure. Just go back to the back of the room and read the letter that Mrs. French made you write at the beginning of the school year. Yes, when I read that for the second time, at the end of the year, it made me have wanted to work harder during the year. So, reading that letter every now and then will do the trick and you'll be back on track in no time.

Finally, make sure you practice managing your time for the free-response section of the AP test. Practice both time management and solving free-response problems, and you will be all set. And I felt the most prepared for this AP test, so take advantage of all your resources and materials. When the AP test is over, your AP Statistics class becomes your best friend. Mrs. French will have wonderful surprises for all her students after the AP tests and you realize how lucky you are to be studying statistics with Mrs. French.

Furthermore, this was the first class where I finished the textbook in its entirety all before the third quarter ended. Yes, another feeling of satisfaction. But remember, you have to work for your rewards, so stay focused from the beginning and all throughout the year (especially third quarter!!).

This is one of the best classes here at Lake Braddock, so work hard and enjoy it!

Yours Truly,

Sun-Young Chung

Letter 11

Dear AP Statistics Students,

Hello! My name is Kiley Coleman and I took AP statistics not knowing exactly what to expect. I too read many letters from previous students in the summer packet and found, throughout the year, that much of what was said to be frighteningly true.

You may have been thinking AP statistics would be an easy AP, and that it's a fun class. Well, you're wrong. It's not an easy AP, and sometimes you will find yourself falling asleep in class, most likely around chapter three, from being so frustrated and deciding to just give up. Not to worry, you'll get candy in class every once in a while, which will brighten up your day, and Mrs. French always tries to make class bearable, if not fun.

Always take notes in class! When the final exam rolls around, which is before the AP exam I might add, you'll wish you had notes on everything. First quarter will seem easy, and will go by fast, but all of the concepts you learn are crucial for survival in the class. These concepts will come back to haunt you on the AP exam, and especially throughout fourth quarter if you decide that you really "don't need to know how to do that part." Mrs. French is always helpful if you have trouble understanding a topic, so don't be afraid to ask questions, even if they've been asked before. You'll find that the rest of the class is just as confused as you are.

Before you know it, the holidays will be upon you, and you'll be debating between laboring for hours on your seemingly impossible statistics homework, which most of the time is only worth a handful of points, and getting a reasonable amount of sleep. Take the sleep. If you're lucky enough to have class 7th period, you can attempt to do some of your homework during lunch. The important thing is that you at least do the review assignment before the test, which normally will give you a solid idea of what to expect on the test. If you don't have hours to spare to try and conquer the homework, just re-read the chapter. The text book is amazing at explaining most of the material, and sometimes, if it's late enough, you'll find yourself just staring at the pages wondering why you're not sleeping and all of a sudden you'll realize that you'll probably fail the test anyways if you've only just started studying.

Third quarter is a challenge. You'll walk into class one day not knowing that you're about to be told to copy down a "template;" the most evil word in the class. Although there are only two if these "templates" to **MEMORIZE**, your grade on all future tests, quizzes, the final exam, and the AP exam depend heavily on learning them as soon as possible. I kid you not. Mrs. French may seem, at times, that she loves the color red, and more so loves decorating your tests with it, but if you memorize the two paragraphs ("templates") you most likely won't have this problem. Well, unless of course the format of a complete response is not memorized as well. You're introduced to it in the beginning of the year, so learn it and all the steps and you'll get decent grades on most of your tests.

You'll need a friend in class, but be sure to choose wisely, the smarter the friend, the better. A study buddy will be one of your most valued assets throughout your AP Statistics year. Studying with other people is more fun, and you'll always learn a new way to memorize one of the many test procedures. April is a mess. There is a test or a quiz every week, and it is all cumulative, so if you don't understand something, **ASK FOR HELP!**

Reading over this letter, AP Statistics seems quite intimidating. Just remember that Mrs. French is always there to help you, and to keep trying! The most important advice to give you for a successful year is to have fun. Sure, you can stress about it and get that perfect grade, but remember that high school is about having fun as well, so relax, and don't give up when you fail a major test, because it's inevitable. Good luck!

Sincerely, Dear future student,

Welcome, fellow overachiever, to a thrilling and exciting math class, full of adventure, fun, M&M eating, Skittle counting, and lots of homework. The subject matter encompassed in Advanced Placement Statistics begin to take over your life and before you know it, you're reading the newspaper or watching the presidential news polls and wondering "Hmm, I wonder if they had any bias in their sample?" or "What on earth could their p-value have been to come up with a percentage like *that*?" I even found myself questioning the Chick-fil-A advertisement that read, "95% of Americans prefer Chick-fil-A over McDonalds". I mean, did they ask just the people in their restaurant or just some random people on the street? And how did they ask them? I'll bet it's a Type I error, because I prefer the Big Mac over anything with chicken. I mean, they should have all the details on the bottom of the friggin advertisement don't you think?? This is quite important information that should not be concealed from the public.

But besides how AP Stat has made me go absolutely insane, I have a few things you should be warned about. First of all, do your homework. If anything, **DO YOUR HOMEWORK!** I really cannot stress the weight of such a meaningless thing. Oh, but you don't like homework? That's too bad now isn't it? Eventually, you'll rack up those lost points, 2 by 2 by 2 by 2 until you've got 10 out of 40 points in your homework grade. Not only will it matter for your grade, but you'd be surprised how much you learn by R & TN (reading and taking notes) on the chapters. Doing your homework nightly, could be a very valuable asset when you take quizzes and tests. You'll find that many of the test and quizzes have problems similar to the ones in the textbook. And you may think that her first quizzes and tests are quite difficult (as I did the first quarter), but you'll thank her when the AP exam comes around. Mrs. French knows what she's doing, despite her quite lunatic ways, she really knows how to get you ready for the AP exam. You won't see it in the beginning, or the middle, or even at the end, but you'll understand when you've blown through that last AP Free Response and realized that all that homework, all the failed test/quiz grades, all the paragraph reciting at 2:30 AM, all the times you wished you had photographic memory to memorize formulas from the book, has finally paid off.

But you seriously won't realize that until you've finished the exam. No, seriously. It takes the AP exam to prove to yourself that all your failing grades during the "Hellish Third Quarter" (I'm officially coining that term for Mrs. French's AP Stat class). But if I could have done anything different in the beginning of the Hellish Third Quarter, I would have been in Mrs. French's room every day of the week because I did not understand p-values to save my life. Even though I memorized "The Paragraph" and I understood what it meant, I don't think that it helped to comprehend the formulas and memorize the procedures and difference between 1- and 2-sample T-tests and intervals and 1- and 2- proportion Z-tests and intervals. It's not fun, this Hellish Third Quarter, so don't slack. And if you want to slack the whole year, and not do homework or pay attention, just at least take notes during the Hellish Third Quarter. I know that my face was plastered to my notebook when I studied for the final exam, and had I not taken those notes, I would have really failed this class. And failing this class is not an option...Just ask Mrs. French. Don't take this class because you think it's easy, because it's not. It's not a BS class and it's not something to be taken lightly. Sure, she'll try to butter you up with Skittles and M&Ms and all those kind of goodies, but do not fall victim to her predatory behavior. She'll lure you into thinking it's easy, but then when Hellish Third Quarter comes around, she'll **POUNCE ON YOU** and before

you know it, you're six feet under the water. Prepare yourself, future warrior of AP Stat, for the worst kind of guerilla warfare known to mankind.

Signing off,
Kelly Huang

Letter 12

Dear Future Statistics Student,

Welcome to for what most of you is your senior year! This last year of high school will go by faster than you could think but remember to slow down and stop the party for a bit and remember that classes still exist. Despite what you might have heard, statistics is not the easiest way to get an AP credit, you are actually going to have to pay attention in class, do your homework, and follow through with the haunting "S" word, that's right, study.

After making my way through the difficult yet somewhat eventful year in AP statistics my only regret is not following my own advice. Which was a rather a big regret when I found myself failing 2nd quarter and wondering why it wasn't as easy as my extremely intelligent older friend deemed it to be. In the beginning of the year we were asked to write a letter explaining what we learned from the letters you are reading now and how we were going to be successful in statistics. Well as one would expect my letter was full of these outrageous "work-your-butt-off" tactics, which I knew I would never have the attention span for. All of this enthusiasm seemed to be a sort of sad attempt to either kiss up to Mrs. French or fool myself into thinking I was well prepared to dive into the challenges of my first AP class head first.

My first advice to you is to not quit when you are ahead. At the middle of the first quarter I found myself with a high B with having to barely study at all. Well, not studying due to the confidence I had in my average was my first downfall. Basically, don't get overconfident like I did. Overconfidence only led me to bombing 2nd quarter with nice fat F causing Mrs. French to move my seat away from my good friend to directly in front of her (me and her were heartbroken). Don't be surprised if this happens to you. Of course you will be flabbergasted telling your parent's that this unspeakable grade must be some mistake as they proceed to ground, condemn, and as you may see it RUIN your senior year! Well that's a little dramatic, but if you still want to populate Glory Day's Grill on Wednesday nights for Burke's beloved 10 cent wing night don't start thinking you're hot stuff with your seemingly "solid" grade.

If you find yourself in a position similar to mine, being restricted by your parents gives you no choice but to buckle down follow the advice you will write in your letter. Staying after school to catch up on lessons you didn't understand is imperative. Having one on one time with Mrs. French or any well-informed student hanging around the classroom is probably the best way to get back on your feet (and get your grounded self out the door).

If you are unlike myself and statistics comes second nature to you here are a few suggestions. Reading ahead is always a good idea for you won't have to pull all night cram sessions before tests because you will already have previewed, learned, and reviewed, the material. Also, if you notice one of you fellow classmates struggling, help them out because teaching someone else the material is another helpful way to help yourself review.

Not to sound like your mother showering you with advice, but time management is another important ingredient in your recipe of statistical success. I know that showing your bruin pride at the games, seeing the latest movies, and in my case shopping all hold a much higher number on the fun factor scale. But, in all reality these things could be taken away at the snap of your parent's finger if it's all pay and no work for you. If you have some extra time maybe review a bit or start to tackle your upcoming assignments. This could help ease up the time when your stress level is through the roof, which could be around Homecoming or when your semester grades get sent off to your colleges of choice. Just remember that you actually do have homework to do senior year and you should allow a sufficient amount of time to get it done.

Good luck future statisticians of Burke! Have fun with your last year of high school but don't forget to hit the books!

Sincerely,

Courtney Jullien