

AP STATISTICS, 2009/2010

Mr. Nygaard

Dear prospective student/parents

I am writing this as a quick introduction to the Advanced Placement Statistics course you or your child is planning on taking in the fall. The intent is not to discourage anyone from taking this course, but to encourage the students to review and be ready to get a quick (positive!) start. This is a COLLEGE LEVEL statistics course, and will be taught as a college course. As such, students can expect outside work and preparation of the type they will be expected to perform at a college or university. The goal of this class is to help the students learn the material necessary to earn college credit for a basic college statistics course (usually requiring a 3 or higher on the AP exam.)

The AP Statistics course requires successful completion of Algebra II and Trigonometry. As such, all students are expected to be able to satisfactorily demonstrate the probability and statistics skills learned in Algebra I and II, and Geometry. Students are required to review this material during the summer, via the “summer assignment”, so all students are starting at the same basic level. Please note that the successful completion of the summer assignment is a good indicator of the student’s motivation and ability to complete a course like this. If they are unable to accomplish this on their own, they will probably have difficulty being successful in the class. In addition, the student may want to find and visit the AP Statistics website to see what is in store for them and what resources are available.

The summer assignment will be collected on the first day of class. This assignment will cover the applicable review material from the previous math courses, including use of a graphing calculator (TI-83/84, etc.) This assignment counts as 25% of the first quarter's homework grade, and there will be a test over this material on the second day of class. Students who have difficulty with these concepts, which provide the basis for learning the concepts of statistics, will (most likely) have difficulty successfully completing this course.

I look forward to working with students who are ready for the challenge of this college-level course. Please email me (steven.nygaard@vbschools.com) if you have any questions.

S. Nygaard

AP STATISTICS SUMMER ASSIGNMENT, 2009-2010

OBJECTIVES FOR SUMMER ASSIGNMENT

1. Determine the mean, median, mode and range of a set of quantitative data, by manual means and by using a graphing calculator.
2. Create a box and whisker plot by hand, and by using a graphing calculator.
3. Create a stem and leaf plot by hand.
4. Find the “line of best fit” for a set of data using the linear regression function of a graphing calculator.
5. Create a scatter-plot showing the relationship between two variables, using a graphing calculator. Display the line of best fit on the scatter-plot.
6. Estimate the value of dependent variables given an independent variable. Estimate the value of independent variables, given a dependent variable.
7. Use venn diagrams to logically determine elements of combinations of intersecting and independent sets.

AP STATISTICS SUMMER ASSIGNMENT, 2009-2010

STUDENT NAME: _____

STAPLE ALL WORK TO THIS PAGE

The purpose of this assignment is for you to review the related math concepts from your previous Algebra and Geometry courses. You are expected to use any resources you may have available; text books, internet, library, etc. Remember, this counts as 25% of your first quarter's homework grade and you will be tested on these items the second day of class. Round all answers to 2 decimal places, when appropriate.

Summer Assignment Grading Criteria:

Expectation	Points Possible	Points Earned
Technical quality of work	70	
Communications Skills	20	
Neatness	10	
Maximum possible	100	

1. Define the following terms, and EXPLAIN how to find them (when appropriate): Mean, median, mode, range, maximum value, minimum value, Quartiles (Q1, Q3), five number summary (box and whisker plot), interquartile range, row, column, dependent variable, independent variable.

Data set 1: final exam test scores, spring 04	Data set 2: final exam test scores, spring 05
66 72 62 46 52 42	46 72 62 66 51 43
72 78 68 88 94 84	88 78 68 72 93 85
33 39 29 76 82 72	76 39 29 33 81 73
97 99 93 73 79 69	73 99 93 97 78 70
98 94 94 102 102 98	102 94 94 98 103 90
96 92 92 89 95 85	89 92 92 96 94 86
94 80 90 85 91 81	85 80 90 94 90 82
23 29 33 99 105 95	99 29 19 23 90 96

2. For each set of final exam scores given above, find the following (using the graphing calculator you will be using in class...TI-83/84 or equivalent): (Round all values to TWO decimal places, when appropriate)

a. mean	f. range
b. median	g. Q1
c. mode	h. Q3
d. min value	i. five number summary
e. max value	

AP STATISTICS SUMMER ASSIGNMENT, 2009-2010

3. Present the test scores for each year using stem and leaf plots, in a manner that makes it easy to compare the two years worth of scores. Make sure the plot is labeled properly, and includes a scale.
4. Draw a box and whisker plot representing the test scores for each year. Make sure these plots are appropriately scaled and labeled; put them on the same scale for easy comparison. Again, present them in a manner that makes for easy comparisons.
5. Which year's students had the "best" overall test scores? Explain your reasoning in one or two well-written paragraphs, including what you used to base your decision. Refer to your graphs and calculations where appropriate. (Hint...you should be referring to your stem and leaf plots, and box and whisker plots/summary data.

Use the following data set for question 6.

Hrs Studied	1	2	3	4	5	6	7	8	9	10	11	12
Grade	42	66	70	66	78	86	88	92	94	102	99	99

6. Find the line that best represents the correlation of grades to hours studied (using linear regression).
 - a. Enter the data in your calculator.
 - b. State the equation of the line in slope-intercept form.
 - c. Make a list of the steps you used (buttons you pushed) on your calculator to find the equation of the line. (State what type calculator you used.)
 - d. What would you expect a student's grade to be if they didn't study at all? Does this answer make sense? Explain.
 - e. What would you expect a student's grade to be if they studied for 20 hours? Does this answer make sense? Explain.
 - f. Create a graph showing the line of best fit AND the data points. This may be done manually or by using computer software.
7. Using graph paper:
 - a. produce a scatterplot of the data used in problem 6
8. Attach work supporting each question to this cover sheet. Make sure each problem is labeled, and presented in order.
9. WORD PROBLEM: There are 22 students in an AP Statistics class. Of the 22 students, 13 of them are also taking AP Biology; 1 is taking AP Government (only); 6 of them are taking both AP Biology and AP Government.
 - a. Draw a VENN diagram that represents the courses these students are taking.
 - b. How many students are taking ONLY AP Statistics?
 - c. How many are taking AP Biology?
 - d. How many are NOT taking AP Government?
 - e. How many are NOT taking AP Biology NOR AP Government?
 - f. How many are taking only 1 AP class?
 - g. How many are taking 2 AP classes?
 - h. How many are taking 3 AP classes?