



PROBABILITY AND STATISTICS

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

COURSE DESCRIPTION

This course provides an understanding of the kinds of regularity that occur in random functions and also provides experiences in associating probabilistic mathematical models with phenomena in the real world. Topics include averages, measures of variation, frequency distributions, and probability functions associated with random variables, binomial distributions, sampling, the normal curve, and statistical methods available for decision making. The course can be taken at any point after the completion of Algebra II/Trigonometry or Algebra II.

PREREQUISITE

Algebra II or Algebra II/Trigonometry

OPTION FOR NEXT COURSE

Trigonometry and/or Discrete Mathematics

REQUIRED STUDENT TEXTBOOK

Elementary Statistics: Picturing the World, Third Edition, Larson and Farber, Pearson/Prentice Hall (2006)

RECOMMENDED CALCULATOR

TI-83 Plus or TI-84 Plus

Virginia Beach Instructional Objectives
Probability and Statistics (1 Semester) – MA3190

School Net Objective	Objective
	Descriptive Statistics
MA.PS.1.1	The student will identify uses and abuses of statistics. (SOL PS.1)
MA.PS.1.2	The student will construct a visual form of a data set and draw conclusions from the data. (SOL PS.1, PS.3)
MA.PS.1.3	The student will compute and interpret measures of central tendency and variation given a set of data. (SOL PS.2, PS.3)
MA.PS.1.4	The student will calculate and interpret z-scores, percentiles, quartiles, and deciles. (SOL PS.4)
	Probability
MA.PS.2.1	The student will utilize empirical and classical methods for finding probabilities. (SOL PS.12)
MA.PS.2.2	The student will classify two or more events as complementary, dependent, independent, and/or mutually exclusive. (SOL PS.11, PS.12)
MA.PS.2.3	The student will apply the law of large numbers concept and the addition and multiplication rules of compound events. (SOL PS.11, PS.12)
MA.PS.2.4	The student will apply the fundamental counting rule, factorial, permutation, and combination to problem solving.
	Discrete Distributions
MA.PS.3.1	The student will construct a discrete probability distribution and find the mean, variance, and standard deviation. (SOL PS.13)
MA.PS.3.2	The student will compute the mean, variance, standard deviation, and probabilities in a binomial experiment. (SOL PS.13)
MA.PS.3.3	The student will apply probability distributions to problem solving. (SOL PS.13)
	Continuous Distributions
MA.PS.4.1	The student will compute probabilities for continuous uniform distributions. (SOL PS.16)
MA.PS.4.2	The student will identify properties of a normal distribution and use a table or graphing calculator to apply the normal distribution to determine probabilities. (SOL PS.16)
MA.PS.4.3	The student will compute probabilities and scores for standard and nonstandard normal distributions. (SOL PS.16)
MA.PS.4.4	The student will use normal distributions to solve problems. (SOL PS.16)
	Inferential Statistics
MA.PS.5.1	The student will establish a confidence interval for the population mean and determine the sample size. (SOL PS.17)
MA.PS.5.2	The student will establish a confidence interval for a population proportion and determine the sample size. (SOL PS.17)

MA.PS.5.3	The student will describe methods of data collection. (SOL PS.8)
MA.PS.5.4	The student will plan and conduct a survey. (SOL PS.9)
Correlation and Regression	
MA.PS.6.1	The student will determine whether a linear relationship exists between two variables. (SOL PS.4)
MA.PS.6.2	The student will make and interpret predictions using the line of regression. (SOL PS.4)



MISSION STATEMENT

The Virginia Beach City Public Schools, in partnership with the entire community, will empower every student to become a life-long learner who is a responsible, productive and engaged citizen within the global community.

**DEPARTMENT OF CURRICULUM AND INSTRUCTION
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Alternative formats of this publication which may include taped, Braille, or large print materials are available upon request for individuals with disabilities. Call or write The Department of Curriculum and Instruction, Director of Secondary Instructional Services, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038, Telephone (757) 263-1070 or (757) 263-1429, fax (757) 263-1412.