



ADVANCED PLACEMENT 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

Students study the major concepts and tools for collecting, analyzing, and drawing conclusions from data. This course is taught on the college level and the topics meet the requirements set forth in the syllabus of the College Board. Inferential and diagnostic methods are applied to data, and probability is used to describe confidence intervals.

PREREQUISITE

Algebra II or Algebra II/Trigonometry

REQUIRED STUDENT TEXTBOOK

Statistics in Action: Understanding a World of Data, Ann Watkins, Richard Scheaffer, and George W. Cobb, Key Curriculum Press (2008)

RECOMMENDED CALCULATOR

TI-83 Plus or TI-84 Plus

Virginia Beach Instructional Objectives
AP Statistics – MA3192

School Net Objective	Objective
	Exploring Data: Describing Patterns and Departures From Patterns
MA.APSTAT.1.2	The student will be able to interpret, compare, and contrast graphical displays of distributions of univariate data including dotplot, stemplot, histogram, and cumulative frequency plot.
MA.APSTAT.1.3	The student will be able to analyze measures of central tendency and variation of distributions of univariate data and compute and interpret measures of position including percentiles, quartiles, and z-scores.
MA.APSTAT.1.1	The student will be able to compare and contrast methods of data collection including census, sample survey, experiment, and observational study and determine an approximate method of data collection based on purpose, cost, ethics, legalities, and other factors.
MA.APSTAT.1.4	The student will be able to compute and interpret the least squares regression line, interpret the correlation coefficient, the coefficient of determination, the residual plot, outliers and influential points, and analyze validity.
MA.APSTAT.1.5	The student will be able to apply logarithmic and power transformations on data to achieve linearity.
MA.APSTAT.1.6	The student will be able to organize and analyze categorical data and explore conditional relative frequencies and associations.
	Sampling and Experimentation: Planning and Conducting A Study
MA.APSTAT.2.1	The student will be able to plan, diagram an outline, conduct a well-designed sample survey and differentiate and analyze random, stratified, cluster, systemic, and convenience sampling designs. The student will be able to make valid conjectures from the results.
MA.APSTAT.2.2	The student will be able to plan, diagram an outline, and conduct a well-designed experiment, addressing the issues of control, randomization, and replication. The student will be able to make valid conjectures from the results.
	Anticipating Patterns: Exploring Random Phenomena Using Probability and Simulation
MA.APSTAT.3.1	The student will be able to compute probabilities of compound events and dependent and independent events, using permutations and combination notation appropriately. The student will construct the probability distribution of a discrete random variable and demonstrate the ability to compute the mean, standard deviation, and variance of a discrete probability distribution.

MA.APSTAT.3.2	The student will be able to compare and contrast the binomial and geometric probability distributions as well as demonstrate the ability to compute the mean and standard deviation for sums and differences of independent random variables.
MA.APSTAT.3.3	The student will be able to compute probabilities from uniform distributions and apply normal distributions as a model for measurement.
MA.APSTAT.3.4	The student will be able to analyze properties of sample distributions and the distribution of sample means. In addition, the student will use simulations that model the Central Limit Theorem.
Statistical Inference: Estimating Population Parameters and Testing Hypotheses	
MA.APSTAT.4.1	The student will create and interpret a confidence interval for a variety of circumstances including: for a proportion, for a mean, for a difference between two proportions, for a difference between two paired means, and for a difference between two unpaired means.
MA.APSTAT.4.2	The student will conduct a test of significance for a mean, for a proportion, for a difference between proportions, for a difference between paired means, and for a difference between two unpaired means. In addition, the student will be able to explain the relevance of Type I and Type II error and power.
MA.APSTAT.4.3	The student will explore conditional relative frequencies and associations.
MA.APSTAT.4.4	The student will be able to conduct the chi-square test for goodness of fit, for homogeneity of proportions, and for independence, and a test of significance for the slope of a least squares regression line and explain the results.



VIRGINIA BEACH CITY PUBLIC SCHOOLS
A H E A D O F T H E C U R V E

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
2512 George Mason Drive P.O. Box 6038
Virginia Beach, VA 23456-0038

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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.