VIRGINIA BEACH CITY PUBLIC SCHOOLS
CHARTING THE COURSE

Department of Teaching & Learning
Parent/Student Course Information

Advanced Placement Statistics
(MA 3192)
One credit, One year
Grades 11-12

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 TEXTBOOK
The Practice of Statistics, 5th Edition, Daren S. Starnes, Josh Tabor, Daniel S. Yates, and David S. Moore, Bedford, Freeman and Worth (2015)

RECOMMENDED CALCULATOR
TI-83 Plus, TI-84 Plus, TI-84 Plus C or TI-84 Plus CE

Virginia Beach Instructional Objectives
AP Statistics – MA3192

VBO#	Objective
	Exploring Data: Describing Patterns and Departures From Patterns
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.1.2	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.1.4	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.

VBO#	Objective
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.

Dr. Aaron C. Spence, Superintendent
Virginia Beach City Public Schools
2512 George Mason Drive, Virginia Beach, VA 23456-0038

Produced by the Department of Media and Communications for the Department of Teaching and Learning.
For further information please call (757) 263-1070.

Notice of Non-Discrimination Policy

Virginia Beach City Public Schools does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation/gender identity, pregnancy, childbirth or related medical condition, disability, marital status, age, genetic information or veteran status in its programs and activities and provides equal access to the Boy Scouts and other designated youth groups. School Board policies and regulations (including, but not limited to, Policies 2-33, 4-4, 4-6, 4-43, 5-7, 5-19, 5-20, 5-44, 6-7, 7-48, 7-49, 7-57 and Regulations 4-4.1, 4-4.2, 4-6.1, 4-43.1, 5-44.1, 7-11.1, 7-17.1 and 7-57.1) provide equal access to courses, programs, counseling services, physical education and athletic, vocational education, instructional materials and extracurricular activities.

To seek resolution of grievances resulting from alleged discrimination or to report violations of these policies, please contact the Title VI/Title IX Coordinator/Director of Student Leadership at (757) 263-2020, 1413 Laskin Road, Virginia Beach, Virginia, 23451 (for student complaints) or the Section 504/ADA Coordinator/Chief Human Resources Officer at (757) 263-1133, 2512 George Mason Drive, Municipal Center, Building 6, Virginia Beach, Virginia, 23456 (for employees or other citizens). Concerns about the application of Section 504 of the Rehabilitation Act should be addressed to the Section 504 Coordinator/Executive Director of Student Support Services at (757) 263-1980, 2512 George Mason Drive, Virginia Beach, Virginia, 23456 or the Section 504 Coordinator at the student's school. For students who are eligible or suspected of being eligible for special education or related services under IDEA, please contact the Office of Programs for Exceptional Children at (757) 263-2400, Laskin Road Annex, 1413 Laskin Road, Virginia Beach, Virginia, 23451.

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 Teaching and Learning, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038. Telephone 263-1070 (voice); fax 263-1424; 263-1240 (TDD) or email him at Emmanuel.Cenizal@VBSchools.com

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