

2008-09 Course Descriptions

Advanced Calculus	This year-long course continues the calculus sequence that begins with AP Calculus BC. Its content parallels that which you would find in a third semester college calculus course. That is, it covers vectors and three-dimensional analytic geometry, partial derivatives and Lagrange multipliers, multiple integrals, vector calculus, line and surface integrals, Greens' Theorem, Stokes' Theorem, the Divergence Theorem, and first and second order differential equations.
Algebra 1	Emphasis in this year-long course is on student development of an understanding of the symbolic language of mathematics. Algebraic concepts are introduced through the development of an understanding of algebraic expressions, mathematical sentences and equations, the real number system, and functions and relations. Algebraic skills and concepts are developed and applied in a wide variety of problems solving situations.
Algebra 1B	This course is designed as the second year of a two-year sequence covering Algebra 1 content standards. Algebra 1A covers chapters 1-6 in the intermediate school course and Algebra 1B covers chapters 6-11 in the subsequent year. Emphasis in this second year course is on student development of an understanding of the symbolic language of mathematics. Algebraic concepts are introduced through the development of algebraic expressions, mathematical sentences and equations, the real number system, and functions and relations. Algebraic skills and concepts are developed and applied in a wide variety of problems solving situations.
Algebra 2	In this year-long course, students expand their skills in abstract thinking and improve their ability to provide algebraic solutions to problems in various content areas. A functional approach is used in the development of concepts such as exponents, logarithms, and polynomials. Other topics include conic sections, solution of systems of quadratic equations, sequences and series, the binomial theorem, and the complex number system.
Algebra 2 Honors	In this year-long course, students expand their skills in abstract thinking and improve their ability to provide algebraic solutions to problems in various content areas. A functional approach is used in the development of concepts such as exponents, logarithms, and polynomials. Other topics include conic sections, solution of systems of quadratic equations, sequences and series, the Binomial Theorem, complex number system, and other enrichment material.
Algebra 2 MCR	In this year-long course, students expand their skills in abstract thinking and improve their ability to provide algebraic solutions to problems in various content areas. A functional approach is used in the development of concepts such as exponents, logarithms, and polynomials. Other topics include conic sections, solution of systems of quadratic equations, sequences and series, the Binomial Theorem, and the complex number system.
Calculus	A study of functions with applications, and an introduction to differential calculus. Topics include a review of algebra and functions, mathematical modeling with elementary functions, rates of change, inverse functions, logarithms and exponential functions, the derivative, differential equations, and Euler's method. Precalculus topics are reviewed when they are needed in the development of calculus. Topics include graphical interpretations of the derivative, zeroes of functions, optimization, related rates, antidifferentiation, initial value problems, review of trigonometry, modeling with trigonometric functions, geometric sums and series, and the Fundamental Theorem of

	Calculus. Upon completion of this course a student will studied much of the material on the Fundamental Theorem of Calculus.
Calculus AB AP	Calculus AB/AP* is the equivalent of a semester of college calculus dealing with real-valued functions of a single real variable. Course content follows the College Board syllabus. The students take the Advanced Placement Examination in May.
Calculus BC AP	Calculus BC/AP* is the equivalent of a full year of college calculus dealing with real-valued functions of a single real variable. Course content follows the College Board syllabus and California Framework. The students take the Advanced Placement Examination in May.
Computer Science A AP	The AP Computer Science course develops students' abilities to use computers in powerful, intelligent, and responsible ways. Mastery of programming methodology, algorithms, and data structures raises the student's ability to program well above the novice level. An awareness of the ramifications of computer use contributes to one's ability to make responsible and intelligent use of computers. Includes implementation of graphical user interfaces such as the essential GUI elements, creating GUI's and GUI applications.
Computer Science AB AP	Computer Science AB Advanced Placement is an accelerated course for those students who demonstrate exceptional talent in computer programming in Computer Science AP and are able to work with little supervision.
Essentials of Algebra A	This two year long course is designed to provide students an opportunity to learn the essential algebra skills needed to meet the California graduation requirement for math. This course is designed for students who need to begin Algebra. A variety of assessment techniques will be used, including the use of portfolios to document student progress.
Essentials of Algebra B	This two year long course is designed to provide students an opportunity to learn the essential algebra skills needed to meet the California graduation requirement for math. This course is designed for students who need to begin Algebra. A variety of assessment techniques will be used, including the use of portfolios to document student progress.
Functions, Trigonometry & Statistics	Functions, Trigonometry & Statistics is a college preparatory course designed to emphasize computational skills, critical thinking, and problem solving strategies. The content of the course includes strands from the California Mathematics Content Standards of Algebra II, Trigonometry, and Probability and Statistics. Topics covered will include linear, graphing, polynomial, rational, exponential, logarithmic, and trigonometric functions; trigonometric identities; laws of sines and cosines; sequences and series; frequency and normal distributions; data descriptions; counting techniques, and probability.
Geometry	In this course, students develop an understanding of the concept of proof in geometric contexts and construct formal logical arguments. Algebraic techniques are applied in the solution of problems involving geometric figures in two- and three-dimensions.
Geometry Grade 9	In this course, students develop an understanding of the concept of proof in geometric contexts and construct formal logical arguments. Algebraic techniques are applied in the solution of problems involving geometric figures in two- and three-dimensions.

Geometry Honors	In this advanced level course, students develop an in-depth understanding of the concept of proof in geometric contexts and construct formal logical arguments. Algebraic techniques are applied in the solution of problems involving geometric figures in two and three dimensions.
Geometry MCR	Algebraic techniques, as defined by the California Content Standards, are applied in the solution of problems involving geometric figures in two and three dimensions. Some development of the concept of geometric proof is taught.
Pre-Calculus	This college preparatory course is aligned with CA Content Standards, and designed to prepare the student for the study of advanced mathematics. Major emphasis is placed on the analytic approach to the subject rather than numerical computation. The content of the course includes basic trigonometric functions and their development, right triangle relationships and solutions, oblique triangle relationships and solutions, fundamental identities, inverse trigonometric functions, mathematics induction, sequences and limits, analytic geometry, vectors and analysis of functions.
Pre-Calculus Honors	This is a college preparatory course aligned with the California Content Standards and designed to prepare highly capable students for the Advanced Placement Calculus course or an equivalent course at the college level.
Statistics Analysis	This course is designed to introduce students to the basic principles of descriptive statistics, exploratory data analysis, design of experiments, observational studies, simulations, probability, and fitting models to data. The course also looks extensively at principles such as confidence intervals and hypothesis testing, statistical inference, measuring the probability of an event, and using probability in decision-making. Examples from engineering, business, medicine, policy-making, the natural and social sciences, and sports will be explored. Use of computers, modeling software, graphing calculators and the Internet expose students to the power and speed of using technology for data analysis.
Statistics Analysis AP	This course is designed to prepare students in the methods of statistical analysis, following the California Framework and the College Board outline. Among the topics covered are exploratory analysis of data, probability, simulation models, confidence intervals, and data analysis, including standard deviation and correlation coefficients, making use of graphical and numerical techniques to study patterns and departure from patterns. Data must be collected according to a well-developed plan. Statistical inference guides the selection of appropriate models.