

MATHEMATICS

The Valor Math Program offers a differentiated mathematics instruction that engages students in interactive experiences supported by the use of manipulatives, models, textbooks, and technology. Students will move from the concrete foundational stage, to the investigative stage and finally to the project-based stage of contextual application. Frequent and ongoing assessment, in a variety of forms, guides the instructional decisions made by teachers. Assessments include the opportunities for demonstrating mastery and high level thinking.

MAT 110 (112, 114)

Algebra I

Students will master the fundamentals of algebra and be able to successfully model problems and draw graphs. They will study linear systems, systems of equations, exponential equations, polynomial and rational expressions and quadratics. *Student is required to have a TI-84 Plus calculator. (Single gender classes available 112-SGM, 114-SGF)*

Grade: 9,10; **Prerequisites:** Pre-Algebra; Placement examination required; **Term:** Full Year; **Credit:** 1.0

MAT 120

Honors Algebra I

Algebra I Honors covers an expanded and accelerated Algebra I curriculum while exploring higher level critical thinking skills required of students in the honors track. *Student is required to have a TI-84 Plus calculator.*

Grade: 9,10; **Prerequisites:** Grade of "A" in Pre-Algebra; Placement examination required; **Term:** Full Year; **Credit:** 1.0

MAT 210

Geometry

Explores postulates and theorems of plane and solid geometry, parallel and perpendicular lines, polygons and congruent and similar triangles. This course covers special right-triangle relationships, trigonometric ratios, circles, conditional statements and writing two-column and indirect proofs. Curriculum includes proofs of theorems and calculations based on theorems. *Student is required to have a TI-84 Plus calculator.*

Grade: 9,10; **Prerequisites:** Completion of Algebra I; Placement examination required; **Term:** Full Year; **Credit:** 1.0

MAT 220

Honors Geometry

Geometry Honors covers an expanded and accelerated Geometry curriculum, with an additional emphasis on two column proofs and application of the theoretical reasoning. *Student is required to have a TI-84 Plus calculator.*

Grade: 9,10; **Prerequisites:** Grade of "A" or above in Algebra I or "B" or above in Honors Algebra; Placement examination required; Teacher recommendation; **Term:** Full Year; **Credit:** 1.0

MAT 310

Algebra II/Trigonometry

Presents function notation, linear equations, factoring, quadratic and polynomial equations and radical expressions. Students work with complex numbers, curve sketching, conic sections, exponential and rational functions, logarithms, matrices and simple statistics. Curriculum includes an introduction to trigonometry. *Student is required to have a TI-84 Plus calculator.*

Grade: 10,11; **Prerequisites:** Completion of Geometry; **Term:** Full Year; **Credit:** 1.0

MAT 320

Honors Algebra II/Trigonometry

Algebra II/Trigonometry Honors covers an expanded and accelerated Algebra II/Trigonometry curriculum while exploring higher level critical thinking skills required of students in the honors track. *Student is required to have a TI-84 Plus calculator.*

Grade: 10,11; **Prerequisites:** Grade of "A" in Geometry or "B" or above in Honors Geometry; Teacher recommendation; **Term:** Full Year; **Credit:** 1.0

MAT 400

College Algebra

This semester course expounds on the algebraic concepts and fundamentals introduced in Algebra II/Trigonometry. Students will explore in further detail and application such topics as: Real number system properties; solving linear, quadratic, and higher degree equations and inequalities; system of linear equations; exponents and polynomials; factoring first, second and third degree polynomials; rational expressions; roots, radicals, and logarithms; and inverse, exponential, and logarithmic functions. The outcomes of this class will prepare students for college entrance and placement tests, as well as, entering a college level pre-calculus class. *Student is required to have a TI-84 Plus calculator.*

Grade: 11,12; **Prerequisites:** Completion of Algebra 2/Trigonometry; Teacher recommendation; **Term:** Full Year; **Credit:** 1.0

MAT 410

Pre Calculus

Prepares students to take Calculus or AP Calculus AB. Pre-Calculus reviews Algebra II with graphing calculators and then advances to vectors, parametric equations, sequences, series and a formal introduction to calculus. *Student is required to have a TI-84 Plus calculator.*

Grade: 10,11,12; **Prerequisites:** Grade of "B" in Algebra II/Trig; Teacher recommendation; **Term:** Full Year; **Credit:** 1.0

MAT 420

Honors Pre Calculus

Prepares students to take Calculus, AP Calculus AB and BC. Pre-Calculus reviews Algebra II with graphing calculators and then advances to vectors, parametric equations, sequences, series and a formal introduction to calculus. *Student is required to have a TI-84 Plus calculator.*

Grade: 10,11,12; **Prerequisites:** Grade of "A" or above in Algebra II/Trig or "B" or above in Honors Algebra II/Trig; Teacher recommendation; **Term:** Full Year; **Credit:** 1.0

MAT 430

Probability and Statistics

This semester course is designed to familiarize the student with the basic mathematical ideas used to gather, describe, graph, analyze, and interpret data. It covers counting theory (permutations and combinations), probability, and descriptive statistics with many practical applications. Topics include the role of statistics, the data analysis process, graphical methods for displaying data, numerical methods for describing data, linear regression and correlation, nonlinear relations and transformations, random variables and probability distributions, sampling variability and sampling distributions, and confidence intervals. The graphing calculator will be used in this course. *Student is required to have a TI-84 Plus calculator.*

Grade: 11,12; **Prerequisites:** Grade of "C" in Algebra II/Trigonometry or Completion of Pre-Calculus; Teacher recommendation; **Term:** Full Year; **Credit:** 1.0

MAT 510

AP Statistics

In preparation for the AP exam, students will be given an in-depth look at describing patterns and departures from patterns in data, planning and conducting studies, exploring random phenomena using probability and simulation, estimating population parameters and testing hypotheses. *Student is required to have a TI-84 Plus calculator. The cost for the AP exam is \$86.*

Grade: 11,12; **Prerequisites:** Grade of "B" in Pre-Calculus or "C" or above in Honors Pre-Calculus; Teacher recommendation; **Term:** Full year; **Credit:** 1.0

MAT 520

AP Calculus A/B

Familiarizes students with limits and continuity, derivatives, max-min problems, related rates, rectilinear motion, integrals, Reimann sums, volumes of rotation and the calculus of transcendental functions. This course includes a rigorous review for the AP examination. *Student is required to have a TI-84 Plus calculator. The cost for the AP exam is \$86.*

Grade: 10,11,12; **Prerequisites:** Grade of "A" in Pre-Calculus or "B" or above in Honors Pre-Calculus; Teacher recommendation; **Term:** Full Year; **Credit:** 1.0

MAT 530

AP Calculus B/C

Familiarizes students with limits and continuity, derivatives, max-min problems, related rates, rectilinear motion, integrals, Reimann sums, volumes of rotation, the calculus of transcendental functions, integration by parts, integration by partial fractions, integration by trigonometric substitutions, slope fields, Euler's approximation, MacLaurin and Taylor series and the area under polar curves. This course includes a rigorous review for the AP examination. *Student is required to have a TI-84 Plus calculator*

Grade: 10,11,12; **Prerequisites:** Grade of "A" in Honors Pre-Calculus; Teacher recommendation; **Term:** Full Year; **Credit:** 1.0

ELE 115

Math Lab Elective

Math Lab is designed to support student learning, retention and achievement in math. Students enrolled in Math Lab will be concurrently enrolled in another math course. The focus will be on skill remediation, extra practice and homework assistance. This elective is required for students below a C- in their previous math course.

Grade: 9,10,11,12; **Prerequisites:** Teacher recommendation; **Term:** Semester; **Credit:** 0.5 This is a Pass/Fail course.