

**ALGEBRA I GRADE: 9-10 CREDITS: 10 COLLEGE RECOMMENDED? YES PREREQUISITES: None**

This first-year Algebra course is intended to help students learn and develop solid mathematical thinking and demonstrate mastery of CCSS Algebra 1 content and practice standards. This course prepares students for more advanced courses in mathematics. Core units of study include: classifying elements with Venn diagrams, exploring real numbers and their operations, analyzing the structure of algebraic expressions, performing and justifying transformations of polynomial expressions, solving equations and inequalities both by deconstructing and balancing, exploring the nature of functions (with a strong focus on linear relationships), modeling visual patterns with expressions, modeling situations with systems of equations, and working with quadratic functions. There is a heavy emphasis on fostering a growth mindset in every student. To that end, this course employs standards based grading, so that all students can reach proficiency in key learning targets at their own pace. Other core instructional practices include the use of number talks, comparison problems, think-ink-pair-share questions, desmos.com activities, Formative Assessment Lessons (map.mathshell.org), MARS tasks, and reflection activities.

**STRATEGIC ALGEBRA SUPPORT (SAS) GRADE: 9 CREDITS:10 NON-COLLEGE ELECTIVE RECOMMENDED: To 9th grade students needing additional Algebra Support PREREQUISITES: Must be 9th grade student with need for Algebra Support**

This course runs simultaneously with Algebra I. The intent and mission of the course is to prepare, support and refine students' skills in order to become proficient in Algebra I concepts and procedures. This course aims to diagnose and remedy significant 'gaps' in individual foundational math concepts, skills and practices. Furthermore it promotes positive math identity and growth mindset in the spirit of the 8 Common Core Math Practices using individualized peer-tutorial, computer-based tutorial, pair and group project learning, and a variety of puzzles and games to foster critical thinking and strategic thinking.

**ALGEBRA I (SHELTERED) GRADE: 9-12 CREDITS: 10 COLLEGE RECOMMENDED? YES PREREQUISITES: None**

This first-year Algebra course is intended to help students who are learning English to also learn and develop solid mathematical thinking and demonstrate mastery of CCSS Algebra 1 content and practice standards. This course prepares students for more advanced courses in mathematics both linguistically and mathematically. Core units of study include: analyzing the structure of algebraic expressions, performing and justifying transformations of polynomial expressions, solving equations and inequalities both by deconstructing and balancing, exploring the nature of functions (with a strong focus on linear relationships), modeling visual patterns with expressions, modeling situations with systems of equations, and working with quadratic functions. There is a heavy emphasis on learning math terms in English and practicing using precise mathematical language verbally through oral presentations in class. This course employs standards based grading, so that all students can reach proficiency in key learning targets at their own pace. Other core instructional practices include the use of comparison problems, pair-share questions, desmos.com activities, Formative Assessment Lessons (map.mathshell.org), MARS tasks, and reflection activities. This course is taught as a two hour block with Algebra Support as the second hour.

**Data Science GRADE: 11-12 CREDITS: 10 COLLEGE RECOMMENDED? Yes**

**PREREQUISITES: Algebra 2**

**SHELTERED STRATEGIC ALGEBRA SUPPORT GRADE: 9-12 CREDITS: 10**

This is the second hour of Algebra I (Sheltered) where students have an opportunity to practice what they are learning in Algebra. All students are provided with a subscription to the online math tutoring program Mathspace.co as well as individual attention from the teacher, peer tutors and an instructional aide.

**GEOMETRY GRADE: 9-12 CREDITS: 10 COLLEGE RECOMMENDED? YES PREREQUISITES: Students must pass Algebra I**

In our Geometry course, students learn about segments, lines, angles, geometric constructions, properties of parallel lines, transformations, congruence, similarity, logic and proof, right triangle trigonometry, polygons, circles, probability, area, and volume, as set by the California Common Core State Content Standards for Geometry. In addition, students have access to a variety of instructional practices to ensure that they can continue their mastery of the California Common Core State Practice Standards for Mathematics. Students also have the opportunity to continue practicing their Algebra I concepts. A scientific calculator is required.

**ALGEBRA II GRADE: 9-12 CREDITS: 10 COLLEGE RECOMMENDED? YES PREREQUISITES: Students must pass both Algebra I and Geometry** This course covers the California Common Core Algebra II standards. Students study linear, quadratic, exponential, and logarithmic equations and functions. In addition series and sequences, statistics, and probability are taught. A graphing calculator is required. (recommended calculator: TI-83, TI-84)

**INTEGRATED MATH II GRADE: 10-12 CREDITS: 10 NON-COLLEGE ELECTIVE PREREQUISITES: Geometry**

This course is intended to meet the needs of students who have completed Algebra 1 and Geometry and are not yet ready to continue in the college preparatory path. The course includes substantial work in geometry as well as probability and statistics with review of Algebra throughout. The core Geometry topics include lines, angles, geometric constructions, properties of parallel and perpendicular lines, congruence, similarity, right triangles, trigonometry, polygons, transformations, circles, area and volume. Review and introduction to key Algebra 2 topics include linear, quadratic and exponential equations and functions. The course emphasizes applications and makes extensive use of technology.

**IB MATH Applications and Interpretations (SL/HL) I (Standard Level, Higher Level year 1) GRADE 10-12 CREDITS: 10 COLLEGE RECOMMENDED? YES PREREQUISITES: Students must meet the following criteria: C or better in Algebra II or an A in Geometry with summer work to move to this class. A previous teacher's recommendation is needed.**

This is the 1st year of IB Math and both Standard Level and Higher Level Students are in the same course. This course is intended for highly proficient students engaged in meeting and or exceeding state and district standards in Trigonometry / Pre-Calculus. It includes the study of algebra, functions and equations, Voronoi diagrams, unit circle and trigonometry (functions, equations and identities), non-right angle trigonometry, sequences and series, binomial expansion, linear modeling and probability. It is designed to prepare students for the International Baccalaureate Mathematics – Standard Level Exam. Special attention is paid to the internationalism of mathematics and to help students to appreciate the multiplicity of cultural and historical perspectives of mathematics. Students complete investigation and/or modeling portfolios related to the topics taught in this course. A graphing calculator is required. (recommended calculator: TI-83, TI-84)

**IB MATH Applications and Interpretations SL II (Standard Level, year 1) GRADE 11-12 CREDITS: 10 COLLEGE RECOMMENDED? YES PREREQUISITES: Students must meet the following criteria: C or better in Mathematics SL I and a previous teacher's recommendation.**

This college level course is designed for highly proficient students. The course addresses calculus as well as all topics not already taught during MATH Applications and Interpretations SL/HL I, such as descriptive statistics, modeling functions, discrete random variables and normal distribution. During this year students complete an internal assessment which consists of a written paper of a mathematical topic of their choice. Furthermore, there will be an intense, comprehensive exam at the end of the course in May. A graphing calculator is required. (recommended calculator: TI-83, TI-84)

**IB MATH Applications and Interpretations HL II (Higher Level, year 1) GRADE 11-12 CREDITS: 10 COLLEGE RECOMMENDED? YES PREREQUISITES: Students must meet the following criteria: C or better in Mathematics SL I and a previous teacher's recommendation.**

This college level course is designed for highly proficient students. Students taking this HL class will be enrolled in the IB Math Applications and Interpretations SL II, however, will learn additional material through asynchronous instruction. Some of these topics are matrices, vectors, complex network, graph theory, slope fields, Euler's method, Poisson distribution.