

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](https://www.desmos.com) activities, Formative Assessment Lessons ([map.mathshell.org](https://www.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](https://www.desmos.com) activities, Formative Assessment Lessons ([map.mathshell.org](https://www.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](https://www.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)

INTRO TO DATA SCIENCE GRADES: 11 - 12 CREDITS: 10 COLLEGE RECOMMENDED? YES

PREREQUISITES: None (must be in 11th or 12th grade)

Intro to Data Science is a college prep course, taught with UCLA's curriculum. In this class, students learn to use the coding language R to evaluate real world data sets covering topics ranging from sports and video games to police fatalities and workplace discrimination. This is a challenging course with a significant workload, because students will be learning to code while understanding deep and applicable subjects in statistics and data science. The units of study include: Where Data Come From, Exploring Variation, Modeling Variation - The Empty Model, Modeling Variation - The Complex Model, Evaluating Models, and Model Comparison with the F Distribution. This course is a good introductory class that anyone can take, and provides a solid foundation for further study in statistics, whether in IB Math Applications or in college. This course is now recognized as an alternative way to meet the 3rd year math A-G requirement, meaning that students can take Data Science (in lieu of Algebra 2) and be eligible to apply to a CSU/UC.

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 STUDIES SL I (Standard 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 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, unit circle and trigonometry (functions, equations and identities), non-right angle trigonometry, sequences and series, binomial expansion, vectors, statistics, 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 STUDIES 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 MATHEMATICS SL I, such as 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. There is also an emphasis on test preparation for the IB Mathematics SL Examination which students take during the spring semester. A graphing calculator is required.

(recommended calculator: TI-83, TI-84)

IB MATHEMATICS SL I (Standard Level, year 1) GRADE: 10-12 CREDITS: 10 COLLEGE

RECOMMENDED? YES PREREQUISITES: Students must meet the following criteria: C or better in Algebra II and a previous teacher's recommendation.

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, circular functions and trigonometry, matrices, vectors, and statistics 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 MATHEMATICS SL II (Standard Level, year 1) GRADE: 11-12 CREDITS: 10 COLLEGE

RECOMMENDED? YES PREREQUISITES: Student 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 MATHEMATICS SL I. Students complete investigation and/or modeling portfolios related to any of the topics taught in this course. There is also an emphasis on test preparation for the IB Mathematics SL Examination which students take during the spring semester. A graphing calculator is required. (recommended calculator: TI-83, TI-84)

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**IB MATHEMATICS HL II (Higher Level, year 2) GRADE: 11-12 CREDITS:10 COLLEGE
RECOMMENDED? YES RECOMMENDED: 12th grade IB Candidates, intending to major in
Mathematics, Engineering, or other STEM-related Major PREREQUISITES: Pass IB Math HL 1 with C
or better; Pass IB Math SL 2 with B or better**

IB Math HL 2 is the 'capstone' course of the IB Mathematics courses offered at CHS. This course will complete three years of mathematics study and will require students to have taken either IB Math HL 1—currently being phased out—or take IB Math SL 1 as a Sophomore, IB Math SL 2 as a Junior and complete IB Math HL 2 as a Senior. This is an intensive course which will cover Calculus, Statistics and Advanced Algebra not covered in the SL syllabus, review topics covered in the SL syllabus, and go into the HL Option Topic: Differential Calculus, Sequences and Series. Also, an intensive internal assessment (IA) will be drafted, edited and submitted. Furthermore, there will be an intense, comprehensive, 5-hour exam taken over 3 days at the end of the course in May.