



HIGH SCHOOL COURSE LIST

Math

Algebra 1 (Summit Curriculum)

This Algebra 1 Summit course is intended to formalize and extend the mathematics that students learned in the middle grades. Because it is built to follow revised middle school math courses, the course covers slightly different ground than previous versions of algebra. In this course, students deepen their understanding of linear and exponential relationships by contrasting them with each other. Students also apply linear models to data that exhibit a linear trend. The course also covers analyzing, solving, and using quadratic functions.

Prerequisite: Math 8 (Summit Curriculum) (or equivalent)

Algebra 1 Honors (Summit Curriculum)

This Algebra 1 Honors Summit course is intended to formalize and extend the mathematics that students learned in the middle grades. In this course, students deepen their understanding of linear and exponential relationships by contrasting them with each other. Students also apply linear models to data that exhibit a linear trend. The course also covers analyzing, solving, and using quadratic functions. Additionally, this course includes an independent honors project each semester.

Prerequisites: Math 8 (Summit Curriculum) (or equivalent) and teacher/school counselor recommendation

Algebra 2 (Summit Curriculum)

In this Algebra 2 Summit course, students build on their work with linear, quadratic, and exponential functions, and extend their repertoire to include polynomial, rational, radical, and trigonometric functions. Students also expand their ability to model situations and solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. The course covers sequences and series, probability distributions, and more advanced data analysis techniques.

Prerequisites: Algebra 1 (Summit Curriculum) (or equivalent), and Geometry (Summit Curriculum) (or equivalent), and teacher/school counselor recommendation

Algebra 2 Honors (Summit Curriculum)

In this Algebra 2 Honors Summit course, students build on their work with linear, quadratic, and exponential functions, and extend their repertoire to include polynomial, rational, radical, and trigonometric functions. Students also expand their ability to model situations and solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. The course covers sequences and series, probability distributions, and more advanced data analysis techniques. Additionally, this course includes an independent honors project each semester.

Prerequisites: Algebra 1 (Summit Curriculum) (or equivalent), Geometry (Summit Curriculum) (or equivalent), and teacher/school counselor recommendation



HIGH SCHOOL COURSE LIST

Math

AP[®] Calculus AB

This course is the equivalent of an introductory college-level calculus course. Calculus helps scientists, engineers, and financial analysts understand the complex relationships behind real-world phenomena. Students learn to evaluate the soundness of proposed solutions and apply mathematical reasoning to real-world models. Students also learn to understand change geometrically and visually (by studying graphs of curves), analytically (by studying and working with mathematical formulas), numerically (by seeing patterns in sets of numbers), and verbally. Students prepare for the AP[®] exam.

Prerequisites: Geometry Honors (Summit Curriculum), Algebra 2 Honors (Summit Curriculum), Pre-Calculus/Trigonometry (or equivalents), and teacher/school counselor recommendation

AP[®] Calculus BC

This course is the equivalent of an introductory college-level calculus course. In this course, students study functions, limits, derivatives, integrals, and infinite series. Calculus helps scientists, engineers, and financial analysts understand the complex relationships behind real-world phenomena. Students learn to evaluate the soundness of proposed solutions and apply mathematical reasoning to real-world models. Students also learn to understand change geometrically and visually (by studying graphs of curves), analytically (by studying and working with mathematical formulas), numerically (by seeing patterns in sets of numbers), and verbally. Students prepare for the AP[®] exam.

Prerequisites: Geometry Honors (Summit Curriculum), Algebra 2 Honors (Summit Curriculum), Pre-Calculus/Trigonometry (or equivalents), and teacher/school counselor recommendation

AP[®] Statistics

This course is the equivalent of an introductory college-level course. Statistics—the art of drawing conclusions from imperfect data and the science of real-world uncertainties—plays an important role in many fields. Students collect, analyze, graph, and interpret real-world data. They learn to design and analyze research studies by reviewing and evaluating examples from real research. Students prepare for the AP[®] exam.

Prerequisites: Algebra 2 Honors (Summit Curriculum) (or equivalent) and teacher/school counselor recommendation



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Calculus (Comprehensive)

This course provides a comprehensive survey of differential and integral calculus concepts, including limits, derivative and integral computation, linearization, Riemann sums, the fundamental theorem of calculus, and differential equations. Content is presented across ten units and covers various applications, including graph analysis, linear motion, average value, area, volume, and growth and decay models. In this course, students use an online textbook that supplements the instruction they receive and provides additional opportunities to practice using the content they've learned. Students use an embedded graphing calculator applet (GCalc) for their work on this course; the software for the applet can be downloaded at no charge.

Prerequisite: Pre-Calculus/Trigonometry (or equivalent)

Consumer Math (Core) Elective

In Consumer Math, students study and review arithmetic skills they can apply in their personal lives and in their future careers. The first semester of the course begins with a focus on occupational topics; it includes details on jobs, wages, deductions, taxes, insurance, recreation and spending, and transportation. In the second semester, students learn about personal finances, checking and savings accounts, loans and buying on credit, automobile expenses, and housing expenses. Narrated slideshows help illustrate some of the more difficult content. Throughout the course, students participate in online discussions with each other and their teacher.

Prerequisite: None

Continuing Algebra (Core)

This is the second course in a two-year algebra sequence. In this course, students build on what they learned in Developmental Algebra to complete their knowledge of all topics associated with a deep understanding of Algebra I. They learn about relations and functions, radicals and radical expressions, polynomials and their graphs, factoring expressions and using factoring to solve equations, solving quadratics, rational expressions, and logic and reasoning.

Prerequisite: Developmental Algebra (or equivalent)

Developmental Algebra (Core) +

This is the first course in a two-year algebra sequence that concludes with Continuing Algebra. In this course, students begin to explore the tools and principles of algebra. Students learn to identify the structure and properties of the real number system, complete operations with integers and other rational numbers, work with square roots and irrational numbers, graph linear equations, solve linear equations and inequalities in one variable, and solve systems of linear equations. Sophisticated virtual manipulatives and online graphing tools help students visualize algebraic relationships. Developmental Algebra covers fewer topics than a one-year algebra course, providing students with more time to learn and practice key concepts and skills. After completing Developmental Algebra, students are prepared to take Continuing Algebra.

Prerequisite: Pre-Algebra (or equivalent)

MIL Middlebury Interactive Languages 0.5 credit course accessible flash-free additional materials may be required



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Geometry (Summit Curriculum)

This Geometry Summit course builds on the geometry covered in middle school to explore more complex geometric situations and deepen students' ability to explain geometric relationships, moving toward formal mathematical arguments. Specific topics include similarity and congruence, analytic geometry, circles, the Pythagorean theorem, right triangle trigonometry, analysis of three-dimensional objects, conic sections, and geometric modeling.

Prerequisite: Algebra 1 (Summit Curriculum) (or equivalent)

Geometry Honors (Summit Curriculum)

This Geometry Honors Summit course builds on the geometry covered in middle school to explore more complex geometric situations and deepen students' ability to explain geometric relationships, moving toward formal mathematical arguments. Specific topics include similarity and congruence, analytic geometry, circles, the Pythagorean theorem, right triangle trigonometry, analysis of three-dimensional objects, conic sections, and geometric modeling. This course also includes an independent honors project each semester.

Prerequisites: Algebra 1 (Summit Curriculum) (or equivalent) and teacher/school counselor recommendation

Integrated Math (Comprehensive)

This course helps students develop mathematical skills that enable them to solve problems and use reason and logic in math courses. Integrated Math gives the main overview of the many mathematical disciplines; topics include number sense, operations, algebraic sense, introduction to probability, geometric figures, geometric movement, measurement, and a more in-depth look at probability (including permutations and combination). Content is expressed in everyday mathematical language and notations to help students learn to apply the skills in a variety of applications. Instruction is supplemented with self-check quizzes, audio tutorials, web quests, and interactive games that engage students in the content they are learning.

Prerequisite: Algebra 1 (Summit Curriculum) (or equivalent)



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Integrated Mathematics I (Comprehensive)

This first-year high school integrated math course focuses on linear and simple exponential models. The course contrasts linear behavior with exponential behavior, and uses both linear and simple exponential equations as models. Students learn about and work extensively with functions—analyzing function properties and behavior, creating new functions from known functions, and applying functions to various continuous and discrete situations. The statistics in the course focus on modeling. Geometry topics covered in the course include constructions, transformations, similarity, and congruence—and students use the Pythagorean theorem in analytic geometry contexts.

Prerequisite: Pre-Algebra (or equivalent)

Integrated Mathematics II (Comprehensive)

Integrated Mathematics II, a second-year high school math course, focuses on extending the number system to include irrational and complex numbers as well as computation with quadratic polynomials. The course continues with quadratic expressions, equations, and functions, including making comparisons to their linear and exponential counterparts, covered in Integrated Mathematics I. The course also introduces conditional probability as a way to make better decisions when given limited information. Geometry topics covered in the course include similarity, right triangle trigonometry, and volume. Students use the tools of analytic geometry, synthesizing algebra, and geometry concepts to describe circles and parabolas in the coordinate plane.

Prerequisite: Integrated Mathematics I (or equivalent)

Integrated Mathematics III (Comprehensive)

In this third-year high school math course, students encounter unified instruction reviewing and expanding all previous high school math topics. First, they extend their work on polynomials beyond quadratics to graphing, problem solving, and working with rational expressions. Next, they use statistical and probability tools, such as the standard normal distribution, to understand data. Students make inferences using simulations, experiments, and surveys. In geometry, they extend trigonometric concepts to general triangles and use trigonometric functions to model periodic processes. Finally, students substantially use mathematical modeling by making use of well-developed skills with various mathematical tools.

Prerequisite: Integrated Mathematics II (or equivalent)



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Math Foundations I (Remediation) Elective

Students build and reinforce foundational math skills typically found in third through fifth grade for which they have not achieved mastery. They progress through carefully paced, guided instruction and engaging interactive practice. If needed, students can move on to Math Foundations II (addressing skills typically found in sixth through eighth grade) to further develop the computational skills and conceptual understanding needed to undertake high school math courses with confidence.

Prerequisite: Teacher/school counselor recommendation

Math Foundations II (Remediation) Elective

Students build and reinforce foundational math skills typically found in sixth through eighth grade, achieving the computational skills and conceptual understanding needed to undertake high school math courses with confidence. Carefully paced, guided instruction is accompanied by interactive practice that is engaging and accessible. This course is appropriate for use as remediation at the high school level or as a bridge to high school.

Prerequisite: Teacher/school counselor recommendation; Math Foundations I is not required

Personal Finance ½ i □ Elective

In this introductory finance course, students learn basic principles of economics and best practices for managing their own finances. Students learn core skills in creating budgets, developing long-term financial plans to meet their goals, and making responsible choices about income and expenses. They gain a deeper understanding of capitalism and other systems so they can better understand their role in the economy of society.

Prerequisite: None

Practical Math (Core) +

In this course, students use math to solve real-world problems—and real-world problems to solidify their understanding of key mathematical topics. Data analysis, math modeling, and personal finance are key themes in this course. Specific topics of study include statistics, probability, graphs of statistical data, regression, finance, and budgeting. In addition, students learn how to use several mathematical models involving algebra and geometry to solve problems. Proficiency is measured through frequent online and offline assessments as well as class participation. Units focused on projects also allow students to apply and extend their math skills in real-world cases.

Prerequisites: Algebra 1 (Summit Curriculum) and Geometry (Summit Curriculum)



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Pre-Algebra (Core) **Elective**

In this course, students learn computational and problem-solving skills and the language of algebra. Students translate word phrases and sentences into mathematical expressions; analyze geometric figures; solve problems involving percentages, ratios, and proportions; graph different kinds of equations and inequalities; calculate statistical measures and probabilities; apply the Pythagorean theorem; and explain strategies for solving real-world problems. The online textbook provides students with a ready reference and explanations that supplement the online material. Lessons provide demonstrations of concepts as well as interactive problems with contextual feedback.

Prerequisite: Math 6 (Summit Curriculum) (or equivalent)

Pre-Algebra (Comprehensive) **Elective**

In this course, students take a broader look at computational and problem-solving skills while learning the language of algebra. Students translate word phrases and sentences into mathematical expressions; analyze geometric figures; solve problems involving percentages, ratios, and proportions; graph different kinds of equations and inequalities; calculate statistical measures and probabilities; apply the Pythagorean theorem; and explain strategies for solving real-world problems. Lessons provide demonstrations of key concepts as well as interactive problems with contextual feedback. A textbook supplements the online material.

Prerequisite: Math 6 (Summit Curriculum) (or equivalent)

Pre-Calculus/Trigonometry (Comprehensive)

Pre-calculus weaves together the previous study of algebra, geometry, and functions into a preparatory course for calculus. The course focuses on the mastery of critical skills and exposure to new skills necessary for success in subsequent math courses. Topics include linear, quadratic, exponential, logarithmic, radical, polynomial, and rational functions; systems of equations; and conic sections in the first semester. The second semester covers trigonometric ratios and functions; inverse trigonometric functions; applications of trigonometry, including vectors and laws of cosine and sine; polar functions and notation; and arithmetic of complex numbers. Cross-curricular connections are made throughout the course to calculus, art, history, and a variety of other fields related to mathematics.

Prerequisites: Geometry (Summit Curriculum) and Algebra 2 (Summit Curriculum) (or equivalents)

Probability and Statistics (Comprehensive)

Students learn counting methods, probability, descriptive statistics, graphs of data, the normal curve, statistical inference, and linear regression. Proficiency is measured through frequent online and offline assessments as well as asynchronous discussions. Problem-solving activities provide an opportunity for students to demonstrate their skills in real-world situations.

Prerequisite: Algebra 2 (Summit Curriculum) (or equivalent)