

Algebra I

Students entering this course should have some familiarity with the concept of a variable and expressions involving a variable. They should also be familiar with mathematical operations involving integers, fractions, and decimals as well as using inverse operations in order to solve simple linear equations. Students will build upon these skills throughout the year as they study properties of exponents, polynomials and their factors, and rational expressions. Students will become familiar with properties of the graphs of linear and quadratic functions. Students will learn to solve linear, quadratic and rational equations, both in a purely mathematical setting as well as in real-world contexts. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisite: None

Geometry

In this course students learn the concepts of two- and three-dimensional geometry as a logical mathematical system. Topics covered include points, lines, planes, angles, parallel and perpendicular lines and planes, triangles, congruent figures, quadrilaterals, similarity, right triangles, trigonometry, circles, area and volume. Students develop an understanding of proofs and constructions as well as use algebra to analyze and solve problems. Dynamic computer software is incorporated into the course to illustrate concepts and motivate the discovery of geometric ideas. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisite: Algebra I

Geometry Honors

Geometry Honors is a fast-paced, in-depth course covering more abstract mathematical perspectives. Students learn the concepts of two- and three-dimensional geometry as a logical mathematical system. Topics covered include points, lines, planes, angles, parallel and perpendicular lines and planes, triangles, congruent figures, quadrilaterals, similarity, right triangles, trigonometry, circles, area and volume. Students develop an understanding of proofs and constructions as well as use algebra to analyze and solve problems. Geometry Honors is intended for students who enjoy mathematics and who may eventually want to specialize in mathematics or related fields in college. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisite: Final grade of A or higher in Algebra I and/or departmental approval

Algebra II

Students in this course study linear, absolute value, quadratic, rational, exponential, logarithmic and polynomial functions. Students will learn to express mathematical problems algebraically and to solve problems algebraically, numerically and graphically. Students will also gain proficiency in working with a graphing calculator and learn to use it as a tool in problem solving. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisites: Algebra I and Geometry

Algebra II Honors

This course will include all of the topics covered in Algebra II as well as additional topics such as matrices, algebraic proofs, regression equations, sequences, and series. Material will be presented at a faster pace and in greater depth than the college preparatory course. Students in this course should have strong reasoning ability and expect more non-routine problems as well as algebraic proofs. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisite: Final grade of B+ or higher in Geometry Honors and/or departmental approval.

Trigonometry and Statistics

Students in this course will study elementary functions and their use in modeling real-world situations. Emphasis will be placed on presenting algebra in the context of real-world applications and strengthening students' understanding and skills through problem solving. Upon completion of this course students should be ready for either Precalculus or for an entry-level college mathematics course. Students will use Microsoft Excel and a TI-Nspire CX to analyze data, investigate graphs, and develop mathematical models.

Classification: Core

Credit: 1

Prerequisites: Algebra II and departmental placement

Precalculus

Students in this course will continue to refine their algebra skills and become more familiar with applications of the major function families: polynomial, rational, exponential, and logarithmic. They will build their problem-solving skills and will become more comfortable with information presented algebraically, numerically and graphically. The course includes a comprehensive study of circular and analytic trigonometry, polar coordinates and sequences and series. Students will use a TI-Nspire CX graphing calculator to analyze data, investigate graphs, and develop mathematical models.

Grade Level: 12

Classification: Core

Credit: 1

Prerequisite: Algebra II

Precalculus Advanced

Students in this course will continue to refine their algebra skills and become more familiar with applications of the major function families: polynomial, rational, exponential and logarithmic. They will build their problem-solving skills and will become more comfortable with information presented algebraically, numerically and graphically. The course includes a comprehensive study of circular and analytic trigonometry as well as polar coordinates and sequences and series. Course material includes limits in order to prepare students for AB Calculus. Students will use a TI-Nspire CX graphing calculator to analyze data, investigate graphs, and develop mathematical models.

Classification: Core

Credit: 1

Prerequisite: Final grade of B or higher in Algebra II or C or higher in Algebra II Honors.

Precalculus Honors

This course will include all of the topics covered in Precalculus Advanced as well as an introduction to topics in Calculus. Material will be presented at a faster pace and in greater depth than the advanced course. It provides students with rigorous preparation for the subsequent study of AP Calculus BC. Students in this course should have strong reasoning ability and should expect more non-routine problems as well as proof. Students will use a TI-Nspire CX graphing calculator to analyze data, investigate graphs and develop mathematical models.

Classification: Core

Credit: 1

Prerequisite: Final grade of B+ or higher in Algebra II Honors and/or departmental approval.

Introduction to Calculus with Statistics

This course will cover three main topics: Differential Calculus, Integral Calculus, and Statistics. The calculus topics will be presented in that order with statistical concepts which will be developed alongside the Calculus throughout the course. The topics will be less rigorous than their AP counterparts and will be focused more on practical applications with emphasis on building and analyzing mathematical models. The course includes topics that are not part of the AP curriculum and provides flexibility to explore areas of student curiosity in more detail. It is intended for students interested in continuing their studies in mathematics without the intensity of an AP course. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisite: Final grade of C or higher in Precalculus Advanced and/or departmental approval.

AP Statistics

AP Statistics is designed to prepare students for success on the AP Statistics exam in May. This course introduces the student to the major concepts and tools for collecting, analyzing and drawing conclusions from data. The course is divided into four major themes: exploratory analysis, experimental design, probability, and statistical inference. Within each theme, the topics emphasize statistical thinking and communication and minimize computational procedures. Projects and cooperative group data analysis are an integral part of the course. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisite: Final grade of B or higher in Precalculus (any level) or an A- in Algebra II Honors and/or departmental approval.

AP Calculus AB

AP Calculus AB is designed to prepare students for success on the AP Calculus AB exam in May. This course covers differential and integral calculus of a single variable and is equivalent to the first semester of a college calculus course and beyond. Topics covered include limits and their applications, derivatives and their applications, antiderivatives, definite integrals, differential equations, and techniques of integration. Students enrolling in this college-level course should expect a demanding pace, both in the classroom and in their preparation at home. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisite: Final grade of B+ or higher in Precalculus Advanced and/or departmental approval.

AP Calculus BC

AP Calculus BC is designed to prepare students for success on the AP Calculus BC exam in May. This course covers differential and integral calculus of a single variable and is equivalent to two semesters of college Calculus. Topics covered include derivatives and their applications, antiderivatives, definite integrals and their applications, differential equations, techniques of integration, vectors, polar coordinates, and sequences and series. Students enrolling in this college-level course should expect a demanding pace, both in the classroom and in their preparation at home. Students will use a TI-Nspire CX graphing calculator.

Classification: Core

Credit: 1

Prerequisite: Final grade of B+ or higher in Precalculus Honors and/or departmental approval.

Multivariable Calculus

This course is a study of advanced topics in calculus, including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians; application of the line integral including Green's Theorem, the Divergence Theorem, and Stokes' Theorem.

Classification: Core

Credit: 1

Prerequisite: AP Calculus BC

Financial Literacy

This course provides an introduction to the financial literacy concepts that everyone should know. Students will be role-playing different scenarios in their lives and learning how to plan and respond financially. Topics covered will include income and budgeting, debt, investments, and other major financial decisions.

Classification: Elective

Credit: .33

Prerequisite: Algebra II

Problem Solving

In this course students will strengthen problem-solving skills by studying a number of strategies that are often not covered in math class. These are valuable tools for solving non-routine problems that students encounter in math and science class as well as standardized tests like the SAT and ACT. Students will work both independently and in small cooperative groups to solve a variety of problems. Thinking skills will be further developed by learning to communicate mathematical thinking both orally and written. Because the assignments for this class will change from year to year, students may take this class more than once.

Classification: Elective

Credit: .33

Prerequisite: Algebra I

Topics in Statistics

In this course, students will address the mechanics and use of statistics in different real-world applications. Depending on the trimester schedule and student interest, we will cover the use of statistics in sports, politics, social issues, and other areas as well. We will also bring in speakers who will address the use of statistics in their fields.

Classification: Elective

Credit: .33

Prerequisite: Final grade of a B or higher in Algebra II