Mathematics

Algebra I
1 Full Year
1 Credit Hour
Grades: 9
Prerequisite: 8th grade math and teacher recommendation.

Students will develop and apply skills in the following areas: the use of real numbers, linear equations, inequalities, relations, functions (linear and quadratic), polynomials, factoring, rational expressions and equations, radical expressions, and probability. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Problem solving will be emphasized in every topic.

Honors Algebra I
1 Full Year
1 Credit Hour
Grade: 9
Prerequisite: 8th grade math and teacher recommendation.

Students will develop and apply skills in the following areas: the use of real numbers, linear equations, inequalities, relations, functions (linear and quadratic), polynomials, factoring, rational expressions and equations, radical expressions, and probability. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Problem solving will be emphasized in every topic with a deeper emphasis on problem solving and critical thinking within real-world applications.

Geometry
1 Full Year
1 Credit Hour
Grades: 9, 10
Prerequisite: Algebra I and teacher recommendation.

Students will integrate arithmetic and algebra to develop and apply inductive and deductive reasoning in two and three dimensions. Students will be exposed to and trained to complete both two-column and paragraph proofs. Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Problem solving will be emphasized in every topic.

Honors Geometry

1 Full Year
1 Credit Hour
Grades: 9, 10
Prerequisite: A in Algebra I, credit in Honors Algebra I and teacher recommendation.
Students will integrate arithmetic and algebra to develop and apply inductive and deductive reasoning in two and three dimensions. Students will be exposed to and trained to complete both two-column and paragraph proofs. Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Problem solving will be emphasized in every topic. This course is faster paced with a deeper emphasis on problem solving and critical thinking within real-world applications.

Algebra II

1 Full Year
1 Credit Hour
Grades: 11
Prerequisite: Geometry and teacher recommendation.

Building on their work with linear and quadratic functions, students extend their repertoire of functions to include polynomial, exponential, rational and radical functions. Students work closely with the expressions that define the functions and continue to expand and hone their abilities 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 Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Problem solving and real-world application will be applied in this class.

Algebra II/Trigonometry

1 Full Year
1 Credit Hour
Grades: 9, 10, 11
Prerequisite: Geometry and teacher recommendation.

Building on their work with linear and quadratic functions, students extend their repertoire of functions to include polynomial, exponential, rational, radical, and trigonometric functions. Students work closely with the expressions that define the functions and continue to expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Problem solving and real-world application will be applied in every topic covered in this class.

Honors Algebra II/Trigonometry

1 Full Year
1 Credit Hour
Grades: 9, 10, 11
Prerequisite: A in Honors Geometry and teacher recommendation.

Building on their work with linear and quadratic functions, students extend their repertoire of functions to include polynomial, exponential, rational, radical, and trigonometric functions. Students work closely with the expressions that define the functions and continue to expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Problem-solving and real-world application will be applied in every topic covered in this class. This course is faster paced with a deeper emphasis on problem solving and critical thinking within real-world applications.

CP Algebra and Trigonometry (CPAT)

1 Full Year
1 Credit Hour
Grades: 12
Prerequisite: Algebra II and teacher recommendation.

CPAT is a review of essential topics in Algebra II such as linear and exponential equations, quadratic functions, logarithmic and rational equations. The course goes into greater depth in many of the areas already covered in Algebra II. As such, CPAT is not a bridge between Algebra I and Algebra II. It is a course designed only for students who have completed Algebra II but were not recommended (or chose not to) take Pre-Calculus. CPAT also covers several topics that are new to the students, including conic sections, sequences and series, and trigonometry. These new topics are also presented in Pre-Calculus, but to a much greater extent.

Pre-Calculus

1 Full Year
1 Credit Hour
Grades: 10, 11, 12
Prerequisite: Algebra II /Trigonometry and teacher recommendation.

Students will continue their study of linear, quadratic, polynomial, exponential, rational, radical, and trigonometric functions and their real-world applications. Students will also be exposed to systems of equations and matrices, conic sections, and sequences and series. Problem solving will be emphasized in every topic.

Honors Calculus I

1 Full Year
1 Credit Hour
Grades: 10, 11, 12
Prerequisite: Pre-Calculus or Honors Algebra II/ Trigonometry and teacher recommendation.

This is a full-year calculus course meant to provide a foundation/preparation for college level calculus courses. In addition to an extensive review of trigonometry, students will study functions, limits, continuity, derivatives, techniques of differentiation, anti-derivatives, and definite integrals.

Advanced Placement Calculus AB

1 Full Year
1 Credit Hour
Grades: 10, 11, 12
Prerequisite: A in Honors Algebra II/Trigonometry or credit in Honors Calculus I, and teacher recommendation.

Students will follow the curriculum written by the College Board for AP Calculus AB. All material covered in college level differential and integral Calculus classes are studied.

Advanced Placement Calculus BC

1 Full Year
1 Credit Hour
Grades: 11, 12
Prerequisite: A- in AP Calculus BC and teacher recommendation.

Students will follow the curriculum written by the College Board for AP Calculus BC. All material covered in college level differential and integral Calculus classes are studied.

AP Statistics

1 Full Year
1 Credit Hour
Grades: 11, 12
Prerequisite: Algebra II/Trigonometry or Honors Algebra II/ Trigonometry and teacher recommendation.

Elective: Students will follow the curriculum written by the College Board for AP Statistics. All material covered in college level statistics classes is covered.

Math 1152 - Columbus State Community College Calculus 2

1 Semester
1 Credit Hour
Grades: 11, 12
Prerequisite: Credit in AP Calculus AB.

Continue introduction to integral calculus: integration of exponential, logarithmic, trigonometric, inverse trigonometric functions, volume and surface area of solids of revolution, arc length, and methods of integration. Also includes L'Hopital's Rule and Improper Integrals. Analyze plane curves given parametrically or in polar coordinates, and their differential and integral calculus. Infinite sequences and series, and their sum and/or convergence, conic sections, vectors in the plane and in space. Applications to problems in science and engineering.

Statistics 1450 – Columbus State Community College

1 Semester
1 Credit Hour
Grades: 11, 12
Prerequisite: Calculus II

This course is designed to acquaint students with statistical methods used in gathering and analyzing data. The course includes sampling methods and data classification; descriptive statistics; percentiles and z-scores; basic concepts in probability; binomial and normal probability distributions; the Central Limit Theorem; estimating population parameters; hypothesis testing; linear correlation and regression; interval estimation and hypothesis testing with two samples; and chi-square tests of independence.