### MATH COURSES

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Beginning with the graduating class of 2014, the Core Requirement mandates that all students take Algebra II (or its equivalent). All students will be required to take 4 years of math. Eligibility matrices provided at scheduling meetings will indicate specific criteria used for recommended placement in some courses.

*This course meets Ohio Department of Education criteria for “Algebra II Equivalency”.

**A graphing calculator required for this course: TI-83 Plus will be used by instructor. Calculator SC-121 is the only one that may be used on the math and science OGT test.

#### 3093 Algebra 1
(1 credit)
This course examines the basic structure of real numbers, algebraic expressions, and functions. The topics studied are linear equations, inequalities, functions and systems, quadratic equations and functions, polynomial expressions, data analysis, probability, and the elementary properties of functions. Mathematical modeling of real-life problems and problem solving are major themes of the course.

#### 3094 Integrated Math 1
(1 credit)
This course examines the basic structure of real numbers, algebraic expressions, and functions. The topics studied are linear equations, inequalities, functions and systems, quadratic equations and functions, polynomial expressions, data analysis, probability, and the elementary properties of functions. Mathematical modeling of real-life problems and problem solving are major themes of the course. The difference between this course and Algebra 1 is the depth the lessons take into the topics.

#### 3095 Integrated Math OAT
(1 credit)
This course is a targeted approach to Integrated Math 1, providing additional support as needed. Students are identified for this course based upon data and individual needs.

#### 3091 Honors Geometry
(1 credit)
Geometry is the study of mathematics as a mathematical system through the deductive development of relationships in the plane and space developed intuitively in previous years. Students study congruent segments and angles, circle chords, secants and tangent segments, parallel and perpendicular lines, angle measure in triangles, direct and indirect triangle congruence and similarity, proofs, solids of revolution, logic, similar triangles, transformations, the Pythagorean Theorem, coordinate geometry, and surface area and volume of solids. In comparison to Geometry, this course provides increased depth of the study and the development of a project each quarter.
3103 Geometry (1 credit)
Geometry is the study of mathematics as a mathematical system through the deductive development of relationships in the plane and space developed intuitively in previous years. Students study congruent segments and angles, circle chords, secants and tangent segments, parallel and perpendicular lines, angle measure in triangles, direct and indirect triangle congruence and similarity, proofs, solids of revolution, logic, similar triangles, transformations, the Pythagorean Theorem, coordinate geometry, and surface area and volume of solids.

3104 Integrated Math II (1 credit)
This course bridges the algebra and geometric gaps not yet mastered for the OGT. This course will teach test taking strategies, the basics of geometric shape discovery, and show the application of algebra and geometric concepts constructed in short answer and extended response questions. The 4th quarter is dedicated to teaching geometric concepts that will help the students visualize 2 and 3-dimensional figures represented on an x-y axis.

3101 Honors Algebra II w/Trigonometry (1 credit)
Algebra II is the study of the complex number system, symbolic manipulation, and functions. Students discuss, represent, and solve increasingly sophisticated real-world problems using advanced algebraic and data analysis techniques incorporating technology. They also study the properties of functions, the algebra of functions, matrices, and systems of equations. Linear, quadratic, exponential, logarithmic, polynomial, and rational functions are studied with an emphasis on making connections to other disciplines and as preparation for a multitude of careers. Students apply advanced data analysis techniques to find, justify and use the best-fit model from all function models. Communication of the problem-solving skills used is an important part of this course. In comparison to Algebra II, this course introduces and uses trigonometric ideas, provides an increased depth study, and embeds the development of a project each quarter.

3113 Algebra II (1 credit)
Algebra II is the study of the complex number system, symbolic manipulation, and functions. Students discuss, represent, and solve increasingly sophisticated real-world problems using advanced algebraic and data analysis techniques incorporating technology. They also study the properties of functions, the algebra of functions, matrices, and systems of equations. Linear, quadratic, exponential, logarithmic, polynomial, and rational functions are studied with an emphasis on making connections to other disciplines and as preparation for a multitude of careers. Students apply advanced data analysis techniques to find, justify and use the best-fit model from all function models. Communication of the problem-solving skills used is an important part of this course.

3117 Integrated Math III (1 credit)
Students discuss, represent, and solve increasingly sophisticated real-world problems using advanced algebraic and data analysis techniques. The properties of functions, the algebra of functions, matrices, and systems of equations are also studied. Linear, quadratic, exponential, logarithmic, polynomial, and rational functions are studied with an emphasis on making connections to other disciplines and as preparation for a multitude of careers. Communication of the problem-solving skills used is an important part of this course. The difference between this course and Algebra II is the depth the lessons take into the topics.

3111 Honors Pre-Calculus (1 credit)
In pre-calculus, students are introduced to a variety of applications that establish the importance of mathematics in everyday life. During the course of the year students reinforce skills learned in Algebra II, expand upon the intricacies of trigonometry, and develop the idea of limits and derivatives. Course depth, the quarterly projects assigned, and development of calculus concepts contribute to the added rigor of this course.

3123 Pre-Calculus (1 credit)
In pre-calculus, students are introduced to a variety of applications that establish the importance of mathematics in everyday life. During the course of the year students reinforce skills learned in Algebra II and expand upon them. They will utilize trigonometric properties and apply them to real-world examples. Students will then be introduced to limits and derivatives. Throughout the year students will explore and study polynomial functions, trigonometry, polar graphs, and applications of calculus concepts.
3124 Intermediate Algebra  
This course investigates and solves relations of functions numerically, analytically, and graphically. Topics include solutions of polynomial, rational, exponential, and logarithmic equations and inequalities; systems of linear and non-linear equations; matrix solutions; determinants; conic sections; sequences and series; and mathematical modeling. This class is used to prepare students for a college algebra class.

3122 Introduction to College Math  
Introduction to College Math is a ½-year statistics and ½-year calculus class. Statistics is taught in the 1st quarter. The student will be introduced to various graphical displays of both univariate and bivariate data. They will explore normal distributions and touch upon binomial and geometric distributions. They will develop skills to accurately gather data through randomization, while eliminating bias. Statistics will end with the development of the confidence interval and one variable hypothesis testing. In Calculus, the students will develop and work through limit ideas, both algebraically and graphically. They will discover the various uses/applications of the derivate, setting the groundwork for the algebraic and graphical ideas of integrals.

3121 AP Calculus AB  
Fee: $87 AP test  
Prerequisite: Mastery of Pre-calculus and teacher approval  
This is an introduction to differential and integral calculus topics which are equivalent to a college level Calculus 1 course. The course uses advanced skills in algebra, geometry, and trigonometry to analyze real world problems involving movement and variable rates of change. Graphing calculator investigations are an integral part of the course and the AP exam. University credit can be earned with a successful performance on the AP exam.

3126 AP Calculus BC  
Fee: $87 AP test  
Prerequisite: Mastery of Pre-calculus and teacher approval  
This course teaches the extension of the differential and integral calculus topics of Calculus AB, which are equivalent to two semesters of college level Calculus 1 and 2 courses. The course uses advanced skills in algebra, geometry, and trigonometry to analyze real world problems involving movement and variable rates of change. This course focuses on the application of calculus using vectors, parametric/polar modeling, and power series. Graphing calculator investigations are an integral part of the course and the AP exam. University credit can be earned with a successful performance on the AP exam.

3125 AP Statistics  
Fee: $87 AP test  
Prerequisite: Mastery of Geometry and Algebra 2 and teacher approval  
An introductory, non-calculus based college level course which introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data, including exploring data, statistical inference, planning a study, and using probability and simulation to anticipate patterns. Graphing calculators with statistical capabilities are an integral part of the course and of the AP exam. University credit can be earned with a successful performance on the AP exam.