Mathematics Division

High School Courses

BARD 017 **Mathematics 9: Algebra I**
BARD 018 **Mathematics 9: Algebra I**
In semester 1 of this 2-semester math course, students will learn to: 1) Create linear equations & inequalities & systems of these to represent relationships between quantities and 2) Construct and interpret in problem context multiple representations of linear relationships (graphs, visuals, tables, equations). The focus for semester 2 is 1) quadratic functions and non-linear graphs, and 2) adding/subtracting/factoring polynomials.

BARD 019 **Mathematics 10: Geometry**
BARD 020 **Mathematics 10: Geometry**
Geometry is the study of size and shape of physical objects. Concepts from Algebra 1 will be used to explore the relationships between, angles, shapes, the coordinate plane. Students will also be introduced to formal logic for the purpose of proving theorems and arguments, as well the use of physical tools to measure and create constructions for proving geometric theorems. Topics taught will include similarity and congruence, trigonometry, transformation, geometric proofs, measurements of geometric shapes, and theorems relating angles in various configurations and shapes.

College Courses

BARD021/MATH109N **College Algebra**
College algebra enables students to polish their algebra skills in order to study more advanced math; the course also serves students who intend to focus on areas outside of mathematics and the sciences in their college studies. The algebraic tools studied includes those required for pre-calculus and calculus, as well as for the study of probability, statistics, computer science, and other quantitative fields. Students learn about graphs, polynomials, rational functions, exponential functions and logarithmic functions.

BARD022/MATH110N **Pre-Calculus**
This course focuses on the study of the function concept and the major function classes. Among the classes that will be considered are the polynomial functions, the rational functions, the exponential and logarithmic functions, and the trigonometric functions and their inverses. This course is recommended for anyone who is seriously considering continuing on in mathematics or in the sciences in their college careers.

BARD023/MATH141N **Calculus I**
BARD024/MATH142N **Calculus II**
This two-semester sequence focuses on the major elements of calculus. The first semester centers on functions, graphs, and limits. The concept of the derivative is also central to the course, including the derivative at a point, and the derivative as a function. The second semester includes interpretation and properties of definite integrals, the fundamental theorem of calculus, and applications of antidifferentiation.

BARD028/MATH101N **College Topics in Mathematics II**
This course will contain two portions: the first third of our time will focus on rudimentary but mathematically vital concepts of functions, patterns, and number operations. The last two thirds will be a less encumbered exploration of applications of math in everyday life and a conceptual exploration of calculus. Throughout, the course will emphasize life-long mathematical skills: an ability to use math to model and solve real-world problems, construct viable arguments & critique the reasoning of others, and persevere in solving challenging problems.