

MATHEMATICS DEPARTMENT

"If you ask mathematicians what they do, you always get the same answer. They think."

M. Egrafov

Suggested Progressions

Year	Track 1	Track 2	Track 3	Track 4
9 th Grade	Algebra I	Algebra II	Honors Algebra II	Honors Geometry
10 th Grade	Geometry	Geometry	Honors Geometry	Honors Precalculus
11 th Grade	Algebra II	Precalculus	Honors Precalculus	AP Calculus AB
12 th Grade	Probability and Statistics or Precalculus	Probability and Statistics or Honors Calculus	AP Calculus AB	AP Calculus BC

**All incoming freshmen must take a Math Assessment Test.*

ALGEBRA I

MATH 301 **Full Year** **1 credit** **Q.P. 4**

In this course, relationships among quantities and functions, ways of representing relationships symbolically, and analyzing rates of change will be studied. Topics that will be studied include the real number system, algebraic expressions, equations and inequalities in one variable, polynomials, factoring, rational expressions, linear equations, relations, systems of equations, radicals, and quadratic functions.

PREREQUISITES: Pre-Algebra and the Math Assessment Test

GEOMETRY

MATH 311 **Full Year** **1 credit** **Q.P. 4**

In this course, inductive and deductive reasoning will be used to examine relationships among geometric figures, develop conjectures and in solving problems. Topics covered include: logic, parallel lines, triangles, quadrilaterals, similarity, polygons, right triangle trigonometry, circles, and area and volume of plane figures and solids. Students will also use deductive reasoning to organize information into a clear, logical written format.

PREREQUISITE: Algebra I

HONORS GEOMETRY

MATH 312 **Full Year** **1 credit** **Q.P. 5**

This course is designed to familiarize each student with the branch of mathematics that deals with the deduction of the properties, measurement, and relationships of points, lines planes, angles, and figures in space from their defining conditions and certain assumed properties of space. Topics include logic, parallel lines, triangles, quadrilaterals, similarity, right triangle trigonometry, circles, area, volume and transformational geometry. Strong emphasis is placed on the development of writing geometric proofs and the use of algebra.

PREREQUISITES: Algebra II or Honors Algebra II and departmental recommendation

ALGEBRA II

MATH 321 **Full Year** **1 credit** **Q.P. 4**

In this course, the relationships among quantities and functions, ways of representing relationships symbolically, and analyzing rates of change will be studied in more detail than in Algebra I. Students will be expected to complete more intricate problems and broaden their reasoning skills. Topics include real numbers and equations, functions and their graphs, matrices and determinants, polynomials, rational expressions, irrational and complex numbers, and exponential and logarithmic equations.

PREREQUISITE: Algebra I

HONORS ALGEBRA II

MATH 302 **Full Year** **1 credit** **Q.P. 5**

In this course, the basic algebraic concepts taught in Algebra I are briefly reviewed and certain topics are examined in more detail. Topics covered include: real number system, equations in one variable, inequalities, functions and equations, linear systems, matrices and determinants, polynomials, rational expressions, irrational and complex numbers, quadratic functions, polynomial functions, exponential and logarithmic functions, and sequences and series. This course progresses at an accelerated pace and students are expected to complete independent projects.

PREREQUISITES: Freshmen: Algebra I, Math Assessment Test and departmental recommendation
Upperclassmen: Algebra I and departmental recommendation

PRECALCULUS

MATH 331 **Full Year** **1 credit** **Q.P. 4**

This course is designed to familiarize students with the behavior of various types of functions, including linear, quadratic, polynomial, radical, exponential, logarithmic and trigonometric, and their various applications.

PREREQUISITES: Algebra II and Geometry

HONORS PRECALCULUS

MATH 322 **Full Year** **1 credit** **Q.P. 5**

In this course, relationships among quantities and functions, trigonometric properties and identities, sequences, series, and limits are applied to mathematical situations. Functions to be examined include linear, quadratic, polynomial, rational, exponential, logarithmic, periodic, and trigonometric. Students are expected to complete independent study projects.

PREREQUISITES: Algebra II, Geometry, and departmental recommendation

HONORS CALCULUS

MATH 332 **Full Year** **1 credit** **Q.P. 5**

This course introduces new ways to analyze changes among quantities and functions using limits, derivatives, and integrals and their applications to real world situations. Topics include functions, limits and continuity, derivatives and methods of integration.

PREREQUISITES: PreCalculus and departmental recommendation

ADVANCED PLACEMENT® CALCULUS-AB

MATH 333 **Full Year** **1 credit** **Q.P. 6**

This Advanced Placement course is designed to master the fundamentals of limits and the differential and integral calculus. This course closely follows the recommendations of the Committee on Mathematics of the Advanced Placement Program. Topics include limits, continuity, differentiation, and its application in the sciences, integration, methods of integration, and the application of integrals in the sciences. Students are required to take the Advanced Placement Test in Calculus AB.

PREREQUISITES: Precalculus and departmental recommendation. It is strongly recommended that students have taken Honors Physics I or be concurrently enrolled in Honors Physics I.

ADVANCED PLACEMENT® CALCULUS-BC

MATH 340 **Full Year** **1 credit** **Q.P. 6**

This course is a continuation of AP Calculus AB. Topics will include techniques of integration, infinite series, vectors and parametric equation, hyperbolic functions and differential equations. Students are required to take the Advanced Placement Test in Calculus BC.

PREREQUISITES: AP Calculus AB and departmental recommendation

PROBABILITY AND STATISTICS

MATH 341 **Full Year** **1 credit** **Q.P. 4**

This course is designed to show students how statistics are used to describe various situations and to make informed decisions. Topics include data classification, frequency distribution and their graphs, central tendencies, variation, probability and confidence intervals.

PREREQUISITE: Algebra II

HONORS PROBABILITY AND STATISTICS

MATH 348 **Full Year** **1 credit** **Q.P. 5**

This course is designed to show students how statistics are used to describe various situations and to make informed decisions. Topics include data classification, frequency distribution and their graphs, central tendencies, variation, probability, confidence intervals, correlation, regression, chi-square testing, and F-distributions. An integrated project will be required.

PREREQUISITE: Algebra II