

Mathematics Department Curriculum Overview

9th Grade

Required

Algebra I (1)
Algebra I (2), or
Algebra I/II – Hnrs, or
Informal Geometry, or
Geometry, or
Geometry and Trig-Hnrs., or
Algebra II with Trig.

Electives

None

10th Grade

Required

Informal Geometry, or
Geometry, or
Geometry and Trig-Hnrs.
Algebra II
Algebra II with Trig.
Pre-Calculus
Pre-Calculus Honors

Electives

None

11th Grade

Required

Geometry or
Algebra II, or
Algebra II with Trig.
Pre-Calculus
Pre-Calculus Honors
Pre-Calculus II
Calculus
Calculus Honors
AP Calculus
Statistics
AP Statistics
Mathematical Analysis

Electives

College Algebra
SAT Prep Eng/Math*

12th Grade

Required: College Algebra
Algebra II (Students
enrolled in Geometry (1)
in 11th Grade)

Electives

Mathematical Analysis
Calculus
Pre-Calculus II
Calculus - Honors
AP Calculus
Statistics
AP Statistics
SAT Prep Eng/Math*
Business Math (Bus Dept)

* Summer Enrichment

Course Descriptions (Courses listed by level and sequence)

Algebra I-B * Phase 1 * SUS/FBF * 1200380 [Year]

This course is a continuation of the study of Algebra I-A. It aims to acquaint students with the how and why of algebraic structures. **Algebra I-A and Algebra I-B taken sequentially equates to one credit of high school Algebra I is required for college admission.**

Prerequisite: Successful completion of Algebra I-A; the course will be offered through 2007-08.

Algebra I * Phase 1 * SUS/FBF * 1200310 [Year]

This course is offered to students who require a slower-paced math course, while at the same time providing students with the necessary skills to successfully complete the objectives of Algebra I. Students enrolled in this course earn the one credit of high school Algebra I required for college admission.

Prerequisite: Departmental Placement

Algebra I * Phase 2 * SUS/FBF * 1200310 [Year]

This course aims to acquaint students with the basic how and why of algebraic structures. Topics include: the structure of mathematical systems, properties of real numbers, set notation, equations, inequalities, absolute value, relations and functions, rational expressions, radical expressions, polynomials (operations and factoring), graphing, and the translation of word situations into numerical relations.

Prerequisite: Departmental Placement

Algebra I/II - Honors * Phase 3 * SUS/FBF * 1200320/ 1200340 [Year]

This course represents a review of the topics of Algebra I along with a comprehensive and intensive study of the topics of Algebra II. Topics covered will include: language and symbolism of numbers, the real numbers, equations and inequalities in one variable, polynomials, systems of linear equations and inequalities, relations and functions, exponents and radicals, quadratic equations and inequalities in one variable, ratio, proportion, variation, verbal problems, and graphing.

Prerequisite: Departmental Placement



Informal Geometry * **Phase 1** * **SUS/FBF** * **1206300** [Year]

This course represents an introduction to the fundamentals of Euclidean Geometry without formal proofs.

Prerequisite: F to C- in Algebra I, Phase 2, *or* successful completion of Algebra I, Phase 1.

Geometry * **Phase 2** * **SUS/FBF** * **1206310** [Year]

This course is offered to students who have successfully completed Algebra 1. Topics covered include points, lines and planes, initial postulates and theorems and their respective proofs, angle relationships, parallel and perpendicular lines, congruent triangles, similar polygons, areas, circles, construction, loci, and coordinate geometry

Prerequisite: A in Algebra I, Phase 1, C or better in Algebra I, Phase 2, or C or less in Algebra I/II Honors.

Geometry with Trigonometry - H * **Phase 3** * **SUS/FBF** * **1206330/1211300** [Year]

This course is offered as the second course in the Honors Program and is intended as a rigorous preparation for the sequential courses in junior and senior years. The course is divided into two semesters. The first semester is an in-depth study of plane and coordinate geometry. This course provides an accelerated study of Euclidean Geometry, including formal proofs. The objective is to give the student an in-depth study of Geometry with emphasis on the methods of proofs and the formal language of mathematics. The second semester is a complete and extensive study of trigonometry necessary to proceed to the next advance mathematics course. The second semester of this course is available for dual enrollment credit.

Prerequisite: A in Algebra I, phase 2 and successful completion of Algebra II in summer school, *or* C+ or better in Algebra I/ II Honors.

Algebra II * **Phase 1** * **SUS/FBF** * **1200330** [Year]

This course is a continuation of the study of Algebra I and includes equations in three variables, determinants, sequences and series, complex numbers, analytic geometry, exponents, and logarithms. **Students who enrolled in Algebra I-A and Algebra I-B must take this course senior year to fulfill math credits required for college admission.**

Prerequisite: Successful completion of Informal Geometry

Algebra II with Trigonometry * **Phase 2** * **SUS/FBF** * **1200330/1211300** [Year]

The purpose of this course is to continue the study of the structure of Algebra and to provide the foundation for applying these skills to other mathematical fields, including trigonometry. Topics include real numbers, equations and inequalities in one variables, polynomials, systems of linear equations and inequalities, relations and functions, exponents and radicals, quadratic equations and inequalities; in one variable, ratio, proportion, variation, verbal problems, and graphing. Students will also be introduced to the study of trigonometry which will be continued in the next course in the sequence.

Prerequisite : A+ or better in Informal Geometry, or C or better in Geometry, C or less in Geo./Trig. Hnrs.

Pre-Calculus * **Phase 2** * **SUS/FBF** * **1202340** [Year]

The course is designed to provide the student with the study of functions and other algebraic skills needed for the study of calculus. The course represents an intensive study of analytic geometry, elementary functions and introductory calculus. Topics include concepts of algebra, equations, inequalities, functions and their graphs, polynomial and rational functions, and trigonometry. This course is available for dual enrollment credit.

Prerequisite: C to A or better in Algebra II/Geometry, or D+ to C+ in Algebra II/Geometry Honors, or C or better in Math Analysis

Pre-Calculus Honors * **Phase 3** * **SUS/FBF** * **1202340** [Year]

This course is designed to provide the student with the study of functions and other algebraic skills needed for the study of Calculus. The course represents an intensive study of analytic geometry, elementary functions and introductory calculus. Topics include concepts of algebra, equations, inequalities, functions and their graphs, polynomial and rational functions, and trigonometry. This course is available for dual enrollment credit.

Prerequisite: A or better in Algebra II/Geometry or C+ or better in Algebra II/Geometry Honors



Pre-Calculus II * **Phase 2** * **SUS/FBF** * **1202340** [Year]

This course is a continuation of Pre-Calculus I. It is designed to provide the student with an intensive study of analytic geometry, elementary functions and introductory calculus. Topics include concepts of algebra, equations, inequalities, functions and their graphs, polynomial and rational functions, and trigonometry. This course is available for dual enrollment credit.

Prerequisite: C or better in Pre-Calculus I

Calculus I * **Phase 2** * **SUS/FBF** * **1202300** [Year]

This course is intended for students who have a thorough working knowledge of Algebra I, Algebra II, Geometry and Trigonometry. The course begins with a review of Pre-Calculus and then includes an intensive study of the general theory and techniques of calculus. Topics include algebraic, trigonometric, exponential and logarithmic functions; limits; derivatives of algebraic, trigonometric, exponential and logarithmic functions; techniques of integration. This course is available for dual enrollment.

Prerequisite: C to A in Pre-Calculus I/II or D+ to C in Pre-Calculus I/II Honors

Calculus I - Honors * **Phase 3** * **SUS/FBF** * **1202300** [Year]

This course is intended for students who have a thorough working knowledge of Algebra I, Algebra II, Geometry and Trigonometry. The course involves an extensive study of the general theory and techniques of Calculus. Topics include algebraic, trigonometric, exponential and logarithmic functions; limits, derivatives of algebraic, trigonometric, exponential and logarithmic functions; techniques of integration; approximation to the definite integral using rectangles; application of the definite integral to find areas between curves and volumes of solids of revolution. This course is available for dual enrollment.

Prerequisite: A+ in Pre-Calculus I/II or C+ to B in Pre-Calculus I/II Honors

AP Calculus * **Phase 4** * **SUS/FBF** * **1202310** [Year]

The curriculum for this course, provided by the College Board, is driven by the need to prepare the students for the AP Calculus exam in May. This course is intended for students who have a thorough working knowledge of Algebra I, Algebra II, Geometry and Trigonometry. The course involves an extensive study of the general theory and techniques of Calculus. Topics include algebraic, trigonometric, exponential and logarithmic functions; limits, derivatives of algebraic, trigonometric, exponential and logarithmic functions; techniques of integration; approximation to the definite integral using rectangles; application of the definite integral to find areas between curves and volumes of solids of revolution. Students enrolled in this course **must** take the AP Examination. A fee is required for examination. This course is available for dual enrollment.

Prerequisite: B+ or better in Pre-Calculus I/II-Honors. **The student must take the AP test at the end of the year. Fee** is set by the College Board.

Statistics * **Phase 2** * **SUS/FBF*** **1210300** [Year]

This course is designed to explore the concepts of probability, elementary statistics, and hypothesis testing. Specific topics include binomial distribution; combinations and permutations; descriptive, inferential, and nonparametric statistics; correlation and regression; hypothesis testing; measures of central tendency; normal distribution, randomness; and sampling theory. Also available for a semester of dual enrollment credit in the fall.

Prerequisite: B+ or better in Pre-Calculus I, or C+ or better in Pre-Calculus I/II or C- or better in Pre-Calculus I/II Honors.

AP Statistics * **Phase 4** * **SUS/FBF*** **1210320** [Year]

The course is an intensive study of probability, elementary statistics, and hypothesis testing. Specific topics include binomial distribution; combinations and permutations; descriptive, inferential, and nonparametric statistics; correlation and regression; measures of central tendency; normal distribution, randomness; and sampling theory. Students enrolled in this course **must** take the AP Examination. Also available for a semester of dual enrollment credit in the fall.

Prerequisite: B+ or better in Pre-Calculus I/II or B- or better in Pre-Calculus I/II Honors. **The student must take the AP test at the end of the year. Fee is set by the College Board.**

Mathematical Analysis * **Phase 2** * **SUS/FBF** * **1201300** [Year]

This course is intended for the student who has completed a fundamental sequence of required mathematics courses. It introduces higher-level topics and an intense review for successful study of the mathematics required in college. New topics include logic, probability, and statistics. Particular attention will also be paid to algebraic operations, informal geometry, and problem solving.

Prerequisite: F to C- in Algebra II/Geometry, or D+ or lower in Alg.II/ Geometry, or F to C in Pre-Calculus I or Pre-Calculus I/II, or F to D in Pre-Calculus I/II Honors, or A+ in Algebra II.

College Algebra * **Phase 1** * **SUS/FBF** * **1209800** [Year]

The purpose of this course is to strengthen the mathematical skills required for college mathematics. Specific topics covered include operations of real numbers, algebra of sets, integers, ratio and proportion, percents, polynomials, factoring, equations and inequalities, and the geometry of angles, lines, polygons, similarity, and congruence.

Prerequisite: Successful completion of Algebra II, or F to D+ in Math Analysis

Summer Enrichment Course:

SAT Prep Math/English * **Phase 2** * **1700370** * [Semester]

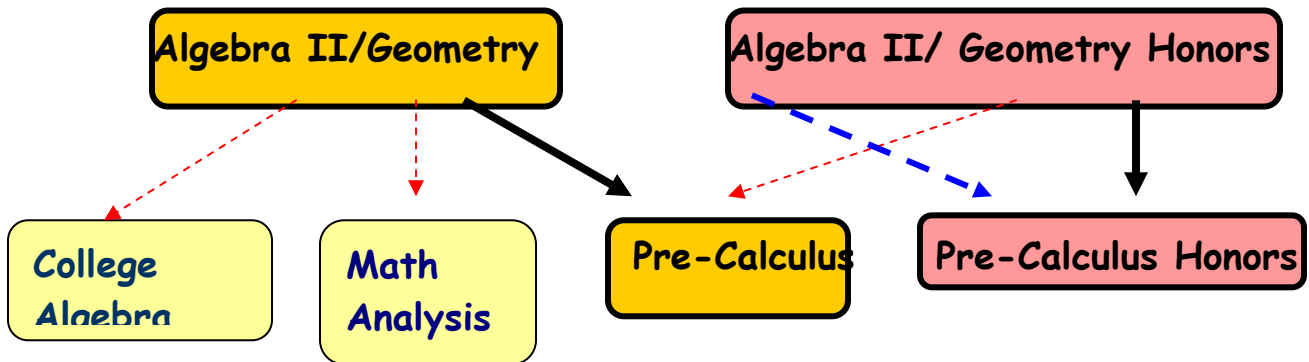
The purpose of this course is to prepare students for both the verbal and mathematics sections of the SAT through vocabulary development, improving critical thinking skills, and practicing skills in answering SAT-type questions. This is an elective course; it does not meet any graduation requirements or SUS requirements in math or English.

Prerequisite: None; graded on a pass / fail basis

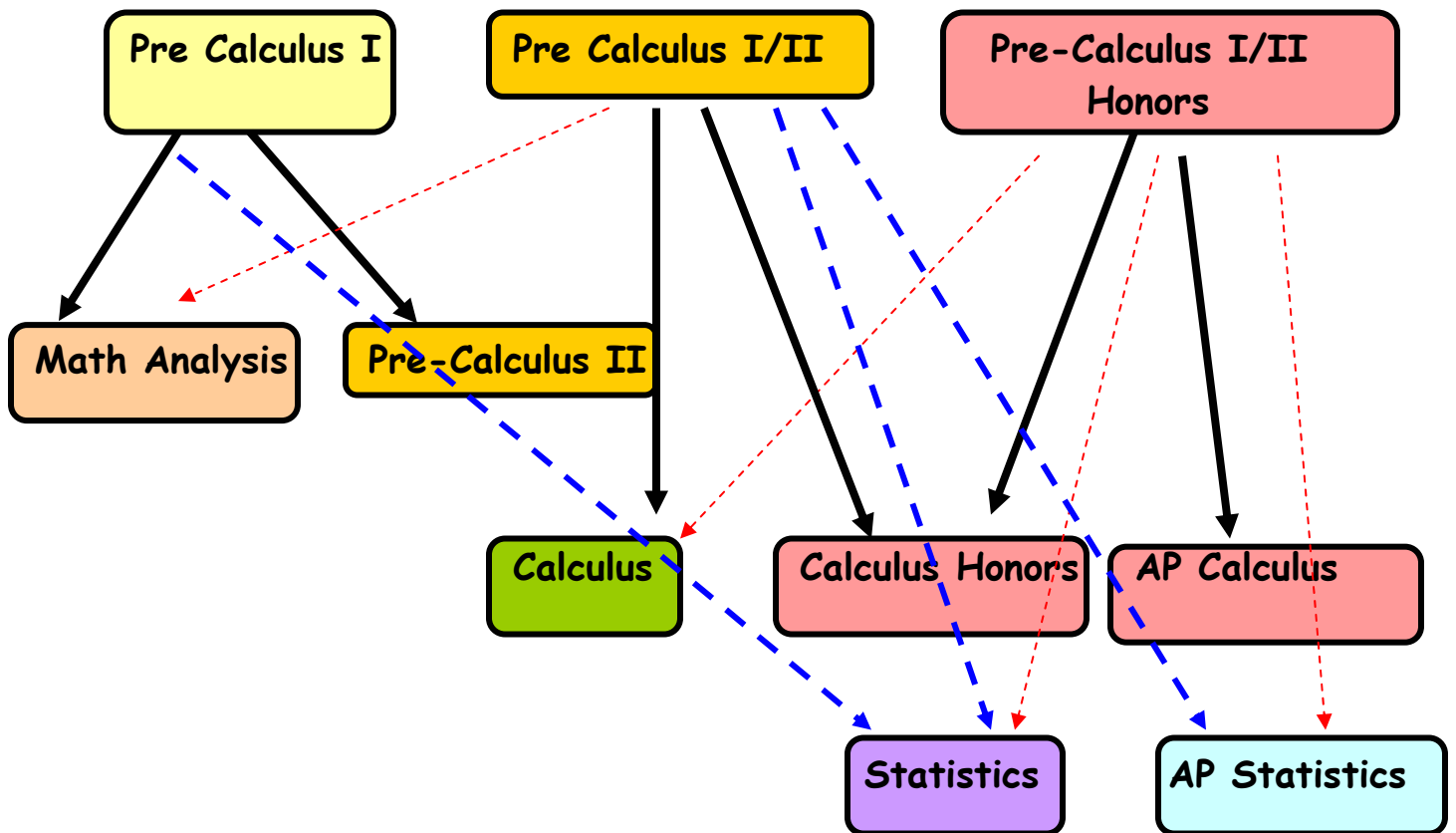
Mathematics Courses Flow Chart

Follow the connections from the course in which you are currently enrolled to determine the next corresponding course in the sequence for students in the Class of 2008 or 2009.

Flow chart for movement this year only for certain courses.



Also



Mathematics Courses Flow Chart – Class of 2010 and subsequent classes.

Follow the connections from the course in which you are currently enrolled to determine the next corresponding course in the sequence for students in the Class of 2010 and thereafter.

