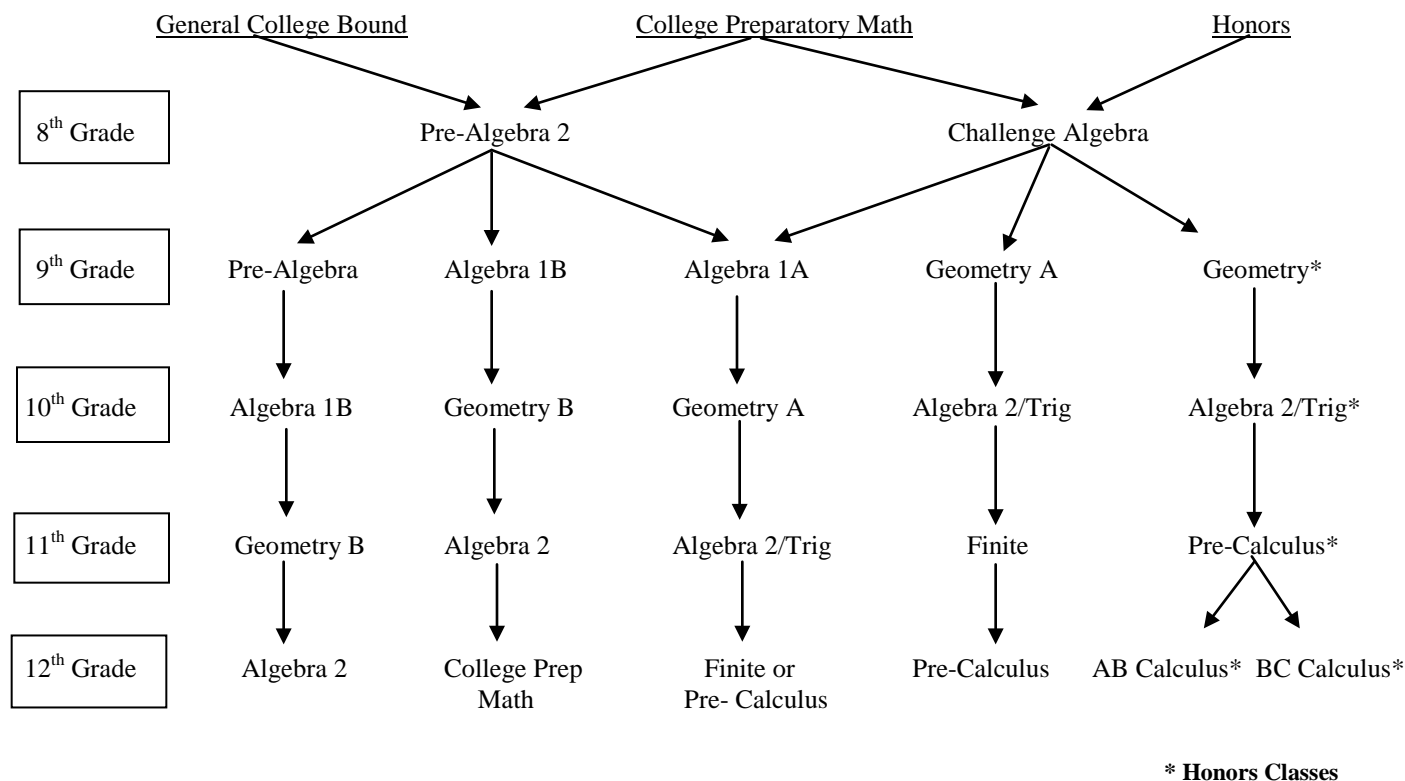


MATHEMATICS

The chart below illustrates suggested course sequences for students. Any student who demonstrates outstanding achievement in a course may move into the next strand of courses. Successful completion of at least Algebra 2 is expected for admission to most Missouri colleges and universities.



These course descriptions communicate the general content of the senior high mathematics courses. The courses are presented in three major strands to provide an idea of general types of mathematics programs throughout the four years of senior high school.

HONORS: This is the advanced placement strand. Each course in this sequence should be considered for highly capable mathematics students. Each course in this strand has a weighted grading scale. The major courses in this strand are Honors Geometry, Honors Algebra 2 with Trigonometry, Honors Pre-Calculus, and AB Honors Calculus, and BC Honors Calculus. Students successfully completing Challenge Algebra in the eighth grade have met the prerequisite for beginning the program.

COLLEGE PREPARATORY MATHEMATICS: This strand of courses will prepare students for future work in mathematics and the sciences. The major courses in this sequence are Algebra 1A, Geometry A, Algebra 2 with Trigonometry, Finite Math, and Pre-Calculus. This strand is a follow-up of eighth grade Algebra or Pre-Algebra.

GENERAL COURSES FOR COLLEGE BOUND: Courses listed in this strand are Algebra 1B, Geometry B, Algebra 2 and College Prep Math. Pre-Algebra 2 in the middle school or Pre-Algebra at the high school are prerequisites for courses in this strand. This strand is not suggested as preparation for universities with rigorous admission requirements or for students who wish to pursue a technical or math-related career.

The prerequisites listed on the next two pages represent requirements the student must meet for enrollment in a given course. Students who fail to meet the prerequisite must obtain the written consent of the math department to enroll.

MATHEMATICS

PRE-ALGEBRA

116051/116052

Grades: 9-12
PRE-ALGEBRA
1 credit
Prerequisite: None

This course is designed to prepare the student for algebra. The content of the course covers a review of the fundamental operations of arithmetic and the basic concepts of rational numbers in both fractional and decimal form. The use of variables in formulae and algebraic statements will help prepare the student for solving problem situations in general, and for future work in algebra.

ALGEBRA 1A

117101/117102

Grades: 9-12
ALGEBRA 1A
1 credit
Prerequisite: Pre-Algebra

The content of this course is that of a traditional algebra course. The course will review fundamental operations of real numbers with emphasis on the rational numbers. The remainder of the course will emphasize the manipulation of algebraic expressions and the solution of algebraic sentences. This is a college preparatory course. Students in this course will take the End of Course Algebra 1 assessment required by the state of Missouri.

ALGEBRA 1B

116101/116102

Grades: 9-12
ALGEBRA 1B
1 credit
Prerequisite: Pre-Algebra

This course covers a review of fundamental arithmetic concepts and the basic operations with emphasis on rational numbers. The course covers traditional algebraic content and is listed in the college bound strand, but is not recommended to be taken by students planning to major in mathematics or science. Students in this course will take the End of Course Algebra 1 assessment required by the state of Missouri.

GEOMETRY A

117201/117202

Grades: 9-12
GEOMETRY A
1 credit
Prerequisite: Algebra 1 or consent of department

The content of this course is a traditional high school Euclidean geometry course with emphasis on formal geometric proof. Geometric properties and concepts in both the plane and 3-dimensional space are covered. The course also integrates previously taught algebraic skills through applications to geometric concepts.

GEOMETRY B

116201/116202

Grades: 10-12
GEOMETRY B
1 credit
Prerequisite: Completion of Algebra program

This course covers the traditional high school Euclidean geometry course with an introduction to geometric proof. The emphasis of the course is on geometric relationships of figures, visualization of geometric properties, and measurement. The course also integrates previously taught algebraic skills through applications to geometric concepts. The course covers traditional geometric content and is listed in the college strand, but is not recommended to be taken by students planning to major in math or science.

HONORS GEOMETRY

118201/118202

Grades: 9-10
+GEOMETRY
1 credit
Prerequisite: Challenge Algebra (grade 8) or consent of department

The content of this course is traditional high school Euclidean geometry. The focus is on the usage of precise mathematical language, deductive reasoning, and critical thinking. Geometric properties and concepts in both the plane and 3-dimensional space are covered. Rigorous problem solving is also emphasized. A weighted grade is given.

ALGEBRA 2 WITH TRIGONOMETRY

117401/

Grades: 10-12
ALG 2/TRIG
1 credit
Prerequisite: Geometry A or consent of department

117402

The content of this course is that of second year algebra with a study of trigonometry. The course reviews concepts and skills of algebra and applies them to more complex algebraic expressions and relations. The course emphasizes classification and properties of the various algebraic relations and functions. Purchase of a graphing calculator is strongly recommended.

ALGEBRA 2

117301/117302

Grades: 11-12
ALGEBRA 2
1 credit
Prerequisite: Geometry

This course reviews fundamental concepts and skills of high school algebra and applies them to typical topics of second year algebra. The content stresses manipulation of algebraic expressions, solution of algebraic statements, and classification of algebraic relations and functions. This course is listed in the

MATHEMATICS

college-bound strand, but should not be taken by students planning to major in mathematics or science.

HONORS ALGEBRA 2 WITH TRIGONOMETRY

Grades: 10-11 **118401/118402**

+ALG2/TRIG

1 credit

Prerequisite: Honors Geometry or consent of department

This course is designed for highly mathematically capable students. The course covers second year algebra topics and trigonometry. The focus is on the analysis and understanding of mathematical relations and functions. Purchase of a graphing calculator is strongly recommended. A weighted grade is given.

COLLEGE PREPARATORY MATHEMATICS

Grade: 12 **117501/117502**

COL PREP MTH

1 credit

Prerequisite: Algebra 2 or consent of department

This course is designed to improve the critical thinking and problem solving skills of students who desire additional preparation for college level mathematics. This course will include the study of statistics with data analysis and probability, applied topics such as elementary and advanced trigonometry, exponential and logarithmic functions, and sequences and series. This course also reviews fundamental concepts and skills of high school mathematics in order to prepare the students for ACT tests and college placement exams.

FINITE MATHEMATICS **117921/117922**

Grades: 11-12

FINITE MATH

1 credit

Prerequisite: Algebra 2 with Trigonometry

This course is intended to give a solid foundation in the non-calculus portions of mathematics. The finite mathematics topics covered have broad applications in business, biological sciences, psychology, sociology, chemistry, engineering, and political science. The mathematical content includes matrices and their application to linear programming, logic, mathematics of finance, as well as elementary probability and statistics.

PRE-CALCULUS **117701/117702**

Grades: 11-12

PRE CALCULUS

1 credit

Prerequisite: Algebra 2 with Trigonometry

This course is designed to prepare students for a calculus course during high school. The content consists of traditional pre-

calculus topics, but the emphasis of the course is on the underlying structure of mathematics. Students will study, analyze, and apply basic algebraic and transcendental functions.

HONORS PRE-CALCULUS **118701/118702**

Grade: 11

+PRE CALC

1 credit

Prerequisite: Honors Algebra 2 with Trigonometry or consent of department

This course is designed to prepare students for a calculus course during high school. The content consists of traditional Pre-Calculus topics, but the emphasis of the course is on the underlying structure of mathematics. Students will study, analyze, and apply basic algebraic and transcendental functions. A weighted grade is given.

AP CALCULUS AB **119801/119802**

Grade: 12

+AP CALC AB

1 credit

Prerequisite: Pre-Calculus or consent of department

This is an honors course designed for superior students wishing to pursue college level mathematics during their senior year of high school. The course offers an intensive investigation of the operations of differentiation and integration with some emphasis on theoretical aspects of functions of a single variable. The course follows the recommended syllabus of the College Board for the Advanced Placement Calculus AB test, which students are encouraged to take for possible college credit and/or advanced placement. A weighted grade is given.

AP CALCULUS BC **119851/119852**

Grade: 12

+AP CALC BC

1 credit

Prerequisite: Honors Pre-Calculus

This course emphasizes a multi-representational approach to calculus through the exploration of limits, differentiation, integration, and many applications within these areas. The concepts of these areas are approached graphically, analytically, and numerically in order to help students foster connections between the numerous concepts discussed. While memorization, computation, and manipulation are needed to solve and work problems, a collective and cohesive understanding of the concepts and how they are interrelated is the focal point of the course. The course follows the recommended syllabus of The College Board for the Advanced Placement Calculus BC test. A weighted grade is given.

MATHEMATICS

AP STATISTICS

119901/119902

Grades: 11-12

+AP STATS

1 credit

Prerequisite: 12th Grade – Calculus, Pre-Calculus or Finite Math or Department Leader Consent

This Advanced Placement course is for students who wish to complete the equivalent to an introductory, non-calculus based, college course in statistics. Students gain experience in four broad themes: exploring data, planning a study, anticipating patterns, and statistical inference. This course follows the recommended syllabus of The College Board for the Advanced Placement Statistics test. A weighted grade is given.