

MATH

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, AP Calculus AB, AP Calculus BC and AP Statistics. Students successfully completing Algebra 1 in the eighth grade (with teacher or PSH Math Department recommendation) 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, Geometry A, Algebra 2 with Trigonometry, Pre-Calculus, and College Algebra. This strand is a follow-up of either eighth grade Algebra 1 or Math 8.

GENERAL COURSES FOR COLLEGE BOUND: Courses listed in this strand are Algebra 1, Geometry B, and Algebra 2. Math 8 in eighth grade or 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 STEM-related career.

The prerequisites listed on the next few 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.

117101/117102

Algebra 1

Infinite Campus Name: **ALGEBRA 1**

Grade(s): 09 - 12

Prerequisite: None

1/2 Math credit each semester

The primary goal in Algebra 1 is to help students transfer their tangible mathematical knowledge to more abstract algebraic generalizations. Topics include recognizing and developing patterns and using tables, graphs and equations for both linear and nonlinear functions. An improved understanding of these topics will help students better understand and respond to the challenges of our ever-changing world. At the conclusion of this course, students will take the Algebra 1 End of Course Assessment required by the state of Missouri.

116201/116202

Geometry B

Infinite Campus Name: **GEOMETRY B**

Grade(s): 09 - 12

Prerequisite: Completion of Algebra Program

1/2 Math credit each semester

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The emphasis of this course is on geometric relationships of figures, visualization of geometric properties and measurement. Algebraic skills are integrated through application of geometric concepts. An introduction to proofs, mathematical language, logical reasoning, and critical thinking is included. Topics include logic and probability, angles and lines, transformations, similarity, triangles, trigonometry, circles, and other polygons.

117201/117202

Geometry A

Infinite Campus Name: **GEOMETRY A**

Grade(s): 09 - 12

Prerequisite: Algebra 1

1/2 Math credit each semester

This course requires students to focus on logical proof and critical thinking when solving problems or evaluating arguments. There is an emphasis on deductive reasoning and critical thinking. Geometric properties and concepts in both the plane and 3-dimensional space are covered. Topics include logic and probability, angles and lines, transformations, similarity, triangles, trigonometry, circles, and other polygons.

118201/118202

Honors Geometry

Infinite Campus Name: **+GEOMETRY**

Grade(s): 09 - 10

Prerequisite: Algebra 1 (Grade 8)

1/2 Math credit each semester

This course requires students to focus on logical proof and critical thinking when solving problems or evaluating arguments. There is a strong emphasis on 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 higher order algebraic concepts are integrated throughout. Topics include logic and probability, angles and lines, transformations, similarity, triangles, trigonometry, circles, and other polygons. A weighted grade is given.

117301/117302

Algebra 2

Infinite Campus Name: **ALGEBRA 2**

Grade(s): 10 - 12

Prerequisite: Geometry

1/2 Math credit each semester

This course continues the exploration of functions which began in Algebra I. Students will analyze functions graphically, numerically, algebraically and investigate how these functions can be used to represent real world data. Functions that will be studied include linear, quadratic, absolute value, polynomial, rational, radical, exponential, and logarithmic. This course is not recommended for students planning to pursue a career in a STEM or Business field.

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117401/117402

Algebra 2 with Trigonometry

Infinite Campus Name: **ALG 2/TRIG**

Grade(s): 10 - 12

Prerequisite: Geometry A or consent of department

1/2 Math credit each semester

In this course, students will study families of functions including linear, quadratic, exponential, logarithmic, radical, rational, and trigonometric. These functions will be represented through equations, tables, and graphical representations. Modeling of real world scenarios and application of concepts to problems arising from those situations will be highlighted. This course is recommended for students planning to pursue a career in a STEM or Business field.

118401/118402

Honors Algebra 2 with Trigonometry

Infinite Campus Name: **+ALG2/TRIG**

Grade(s): 09 - 12

Prerequisite: Honors Geometry or consent of department

1/2 Math credit each semester

This course, which covers second year algebra topics and trigonometry is designed for highly mathematically capable students interested in pursuing STEM professions. The focus is on the analysis and understanding of mathematical relations and functions. Students will analyze linear, quadratic, absolute value, polynomial, rational, radical, exponential, and logarithmic functions graphically, numerically, and algebraically. Purchase of a graphing calculator is strongly recommended. A weighted grade is given.

117701/117702

Pre-Calculus

Infinite Campus Name: **PRE CALCULUS**

Grade(s): 11 - 12

Prerequisite: Algebra 2 with Trigonometry

1/2 Math credit each semester

This course is designed to prepare students for college level mathematics. Students will describe, analyze, and graph basic algebraic and transcendental functions. Students will also study sequences, series, probability, conic sections, and be introduced to the concept of limits. This class may be offered for college credit through University of Missouri - St. Louis.

118701/118702

Honors Pre-Calculus

Infinite Campus Name: **+PRE CALC**

Grade(s): 10 - 12

Prerequisite: Honors Algebra 2 with Trigonometry or consent of department

1/2 Math credit each semester

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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.

117601/117602

College Algebra

Infinite Campus Name: **COLLEGE ALGEBRA**

Grade(s): 11 - 12

Prerequisite: Algebra 2 with Trigonometry or departmental approval

1/2 Math credit each semester

This is a standard course in College Algebra that students may take in order to earn college credit through the University of Missouri, St. Louis. Topics include linear, quadratic, and rational equations and inequalities, the algebra and graphs of functions including polynomial, rational, exponential, and logarithmic, systems of equations, and sequences and series. This course is designed to fulfill one of the college mathematics requirements for students planning to earn either a Bachelor of Science or Bachelor of Arts degree.

117801/117802

Problem Based Applications in Finite Math

Infinite Campus Name: **PROBLEM BASED APPS FINITE MATH**

Grade(s): 12

Prerequisite: Completion of Algebra 2 or Consent of Department

1/2 Math credit each semester

This course focuses on mathematical reasoning and the solving of real-life problems. Emphasis will be on projects, cooperative learning, and application of math skills across career clusters, current events, and social justice issues. Statistics and probability, linear systems, logic, and financial math are some of the topics that will be addressed. This course can be taken for up to two semesters.

117900

Statistics

Infinite Campus Name: **STATISTICS**

Grade(s): 12

Prerequisite: Algebra 2

1/2 Math credit each semester

In this introductory course, students will collect data and use statistics as tools to recognize and examine the basic principles of describing and presenting data to reach reasonable conclusions. Students will explain the role of probability in statistics, analyze and compare various sampling distributions for both discrete and continuous random variables, and compute confidence intervals. The presentation, use, and interpretation of data, probability, sampling, correlation, and use of statistical software will be applied to current events and student directed investigations.

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119901/119902

AP Statistics

Infinite Campus Name: **+AP STATS**

Grade(s): 10 - 12

Prerequisite: Algebra 2 with Trigonometry

1/2 Math credit each semester

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 prepares students to take the College Board Advanced Placement Statistics examination and follows the College Board's recommended syllabus. A weighted grade is given.

119801/119802

AP Calculus AB

Infinite Campus Name: **+AP CALC AB**

Grade(s): 12

Prerequisite: Pre-Calculus or consent of department

1/2 Math credit each semester

This is an honors course that emphasizes a multi-representational approach to calculus through the exploration of limits, differentiation, integration and many applications within these areas. In this course students will study in depth situations involving change and accumulation using descriptive, analytical, numerical and graphical approaches. This course prepares students to take the College Board Advanced Placement Calculus AB examination which fulfills the requirements for Calculus I and follows the syllabus approved by the AP Audit. A weighted grade is given.

119851/119852

AP Calculus BC

Infinite Campus Name: **+AP CALC BC**

Grade(s): 12

Prerequisite: Honors Pre-Calculus

1/2 Math credit each semester

This is an honors course that emphasizes a multi-representational approach to calculus through the exploration of limits, differentiation, integration, series, parametric functions, polar functions and many applications within these areas. . In this course students will study in depth situations involving change and accumulation using descriptive, analytical, numerical and graphical approaches. This course prepares students to take the College Board Advanced Placement Calculus BC examination which fulfills the requirements for Calculus I and Calculus II and follows the syllabus approved by the AP Audit. A weighted grade is given.