



MATHEMATICS DEPARTMENT

PRE-ALGEBRA 2210/12003000

Credit 1 9-12

Pre-algebra is a course to develop the skills necessary for success in algebra. Topics shall include, but not be limited to, operations with rational numbers, variables, ratio and proportion, percents, graphs, sets, number theory, properties of rational numbers, equations and inequalities, exponents, evaluation of formulas, rectangular coordinate systems, algebraic expressions, the Pythagorean Theorem, square roots, polynomials, and factors.

SPECIAL NOTE: This is a Level 1 mathematics course. Placement requires completion of an Academic Improvement Plan. When appropriate, placement must also be indicated on the I.E.P. or 504 Plan. Does not apply towards some Bright Futures Scholarship Program **Guidance counselor placement only.**

ALGEBRA Ia 2322/12003700

Credit 1 9-12

Algebra Ia is a course designed to develop the algebraic concepts and processes that can be used to solve a variety of real world and mathematical problems. The content shall include, but not be limited to, perform set operations, use fundamental concepts of logic including Venn diagrams, know equivalent forms of and perform operations on real numbers (including integer exponents, and radicals, percents, scientific notation, absolute value, rational and irrational numbers), compare and simplify real number expressions, identify and apply properties of real numbers, create and interpret a graph representing a real-world situation, describe the concept of a function, use function notation, solve real-world problems involving relations and functions, determine the domain and range of relations and functions, simplify algebraic expressions, solve linear and literal equations, solve and graph simple and compound inequalities, solve linear equations and inequalities in real-world situations, rewrite equations of a line into slope-intercept form and standard form, graph a line given any variation of information, determine the slope, x and y- intercepts of a line given its graph, its equation or two points on the line, write an equation of a line given any variation of information, determine a line of best fit and recognize the slope as the rate of change, and graph a system of linear equations and inequalities.

PREREQUISITE: Teacher Recommendation.

Special Note: This is the first of a two-year sequence of courses, Algebra Ia and Algebra Ib. Together they satisfy the algebra graduation requirement. NCAA

ALGEBRA Ib 2323/12003800

Credit 1 10-12

Algebra Ib is a course designed to develop the algebraic concepts and processes that can be used to solve a variety of real world and mathematical problems. The content shall include, but not be limited to, simplify and factor polynomial expressions, perform operations with polynomials, simplify and solve algebraic ratios and proportions, simplify and perform operations with radical expressions, graph systems of linear equations and inequalities in two and three variables and quadratic functions, and use varied solution strategies for quadratic equations and for systems of linear equations and inequalities in two and three variables.

PREREQUISITE: Algebra Ia and Teacher Recommendation

Special Note: This is the second of a two-year sequence of courses, Algebra Ia and Algebra Ib. Earning credit in Algebra Ib precludes earning credit in Applied Mathematics II, Integrated Mathematics II, Algebra I, or Algebra I Honors. Algebra Ia and Algebra Ib, taken sequentially, equate to one unit of Algebra I, thus meeting the algebra graduation requirement, and as one unit of an academic core course in the Florida state university system and for NCAA.

ALGEBRA I 2215/12003100

Credit 1 9-12

Algebra I is a course designed to develop the algebraic concepts and processes that can be used to solve a variety of real-world and mathematical problems. The content shall include, but not be limited to, perform set operations, use fundamental concepts of logic including Venn diagrams, describe the concept of a function, use function notation, solve real-world problems involving relations and functions, determine the domain and range of relations and functions, simplify algebraic expressions, solve linear and literal equations, solve and graph simple and compound inequalities, solve linear equations and inequalities in real-world situations, rewrite equations of a line into slope intercept form and standard form, graph a line given any variation of information, determine the slope, x- and y-intercepts of a line given its graph, its equation or two points on the line, write an equation of a line given any variation of information, determine a line of best fit and recognize the slope as the rate of change, factor polynomial expressions, perform operations with polynomials, simplify and solve algebraic ratios and proportions, simplify and perform operations with radical expressions, graph systems of linear equations and inequalities in two and three variables and quadratic functions, and use varied solution strategies for quadratic equations and for systems of linear equations and inequalities in two and three variables.

PREREQUISITE: Teacher Recommendation

Special Note: Earning credit in this course precludes earning credit in Algebra I Honors, Algebra Ib, Integrated Mathematics II, and Applied Mathematics II. This course satisfies the algebra graduation requirement. NCAA

The algebra graduation requirement may be satisfied by earning credit in:

- o Algebra I or Algebra I Honors or
- o Algebra Ia and Algebra Ib or
- o Applied Math I and Applied Math II or
- o Integrated Mathematics I and Integrated Mathematics II or
- o Algebra II or Integrated Mathematics III or

ALGEBRA I HONORS 2208/12003200

Credit 1 9-12

Algebra I Honors is a rigorous course designed to develop the algebraic concepts and processes that can be used to solve a variety of real-world and mathematical problems. The content shall include, but not be limited to, perform set operations, use fundamental concepts of logic including Venn diagrams, describe the concept of a function, use function notation, solve real-world problems involving relations and functions, determine the domain and range of relations and functions, simplify algebraic expressions, solve linear and literal equations, solve and graph simple and compound inequalities, solve linear equations and inequalities in real-world situations, rewrite equations of a line into slope-intercept form and standard form, graph a line given any variation of information, determine the slope, x- and y- intercepts of a line given its graph, its equation or two points on the line, write an equation of a line given any variation of information, determine a line of best fit and recognize the slope as the rate of change, factor polynomial expressions, perform operations with polynomials, simplify and solve algebraic ratios and proportions, simplify and perform operations with radical and rational expressions, simplify complex fractions, solve rational equations including situations involving mixture, distance, work and interest, solve and graph absolute value equations and inequalities, graph systems of linear equations and inequalities in two and three variables and quadratic functions, and use varied solution strategies for quadratic equations and for systems of linear equations and inequalities in two and three variables.

PREREQUISITE: Teacher Recommendation.

Special Note: Earning credit in this course precludes the earning of credit in Algebra I, Algebra Ib, Applied Mathematics II, and Integrated Mathematics II. This course satisfies the algebra graduation requirement. NCAA

INFORMAL GEOMETRY 2296/12063000

Credit 1 10-12

Informal Geometry is a course designed to develop the geometric knowledge that can be used to solve a variety of real-world and mathematical problems. Geometric relationships are developed inductively, with hands-on activities. This course does not include formal deductive proofs. The content will include, but not be limited to, geometric constructions, terminology and fundamental properties of geometry, coordinate geometry and graphing of linear functions and inequalities, inductive reasoning making justifying conjectures, introduction to deductive reasoning, properties of polygons and circles, measurement of plane and solid figures, including perimeter, area, volume, and applications of the inequality and Pythagorean Theorem, applications involving right triangles and special right triangles, exploration and application of geometric relationships including geometric solids, parallelism, perpendicularity, congruence, and similarity.

PREREQUISITE: Algebra I, Algebra Ib, or Applied Mathematics II and Teacher Recommendation.

Special Note: This course does not satisfy the three mathematics credits requirement for admission to Florida State Universities. NCAA.

GEOMETRY 2218/12063100

Credit 1 9-12

Geometry is a course designed to develop the geometric relationships and deductive strategies that can be used to solve a variety of real world and mathematics problems. The content will include, but not be limited to, geometric constructions, terminology and fundamental properties of geometry, deductive and inductive reasoning and their application to formal and informal proof, properties and applications of polygons and circles, formulas pertaining to the measurement of plane and solid figures, coordinate geometry involving circles, apply transformations to polygons, applications of the inequality and Pythagorean Theorems, exploration of geometric relationships such as parallelism, perpendicularity, congruence, and similarity, and right triangle trigonometry.

PREREQUISITE: Algebra I or Algebra I Honors and Teacher Recommendation.

Special Note: Earning credit in this course precludes earning credit in Geometry Honors. NCAA

GEOMETRY HONORS 2294/12063200

Credit 1 9-12

Geometry Honors is a rigorous course designed to develop the geometric relationships and deductive strategies that can be used to solve a variety of real world and mathematics problems. The content will include, but not be limited to, geometric constructions, terminology and fundamental properties of geometry, deductive and inductive reasoning and their application to formal and informal proof, properties and applications of polygons and circles, formulas pertaining to the measurement of plane and solid figures, coordinate geometry involving circles, apply transformations to polygons, use and apply vectors, explore and use sequences, applications of the inequality and Pythagorean Theorems, exploration of geometric relationships such as cross sections of solid objects, parallelism, perpendicularity, congruence, and similarity, and right triangle trigonometry.

PREREQUISITE: Algebra I or Algebra I Honors and Teacher Recommendation.

Special Note: Earning credit in this course precludes earning credit in Geometry. NCAA

LIBERAL ARTS MATHEMATICS 2265/12083000

Credit 1 10-12

Liberal Arts Mathematics is a course designed to strengthen mathematical skills from Algebra I and Geometry, and for further study of statistical concepts. This course is designed to prepare students for Algebra 2. Topics shall include, but not be limited to, know equivalent forms of and perform operations on real numbers (including integer exponents, and radicals, percents, scientific notation, absolute value, rational and irrational numbers), compare and simplify real number expressions, identify and apply properties of real numbers, create and interpret a graph representing a real-world situation, describe the concept of a function, use function notation, solve linear and literal equations, solve and graph simple and compound inequalities, solve linear equations and inequalities in real-world situations, rewrite equations of a line into slope-intercept form and standard form, graph a line given any variation of information, determine the slope, x- and y-

intercepts of a line given its graph, its equation or two points on the line, write an equation of a line given any variation of information, determine a line of best fit and recognize the slope as the rate of change, graph a system of linear equations and inequalities, solve quadratic equations using various methods, and the geometry of polygons, measurement, similarity and congruence.

PREREQUISITE: Geometry or Informal Geometry and Algebra I and Teacher Recommendation.

Special Note: This course does not satisfy the three mathematics credits required for admission to Florida state universities. NCAA

ALGEBRA II 2216/12003300
Credit 1 9-12

Algebra II is a course designed to continue the study of algebra and to provide the foundation for applying these skills to other mathematical and scientific fields. This course provides the necessary preparation for College Algebra. Topics shall include, but not be limited to, structure and properties of the complex number system, arithmetic and geometric sequences and series, identify and graph transformations of functions such as linear, rational, quadratic, cubic, radical, absolute value, polynomial, exponential, and logarithmic, describe end behavior of polynomial functions, perform operations and compositions of functions, varied solution strategies for linear equations, inequalities, and systems of equations and inequalities, and varied solution strategies for variations, quadratic, polynomial, rational, radical, exponential and logarithmic equations.

PREREQUISITE: Algebra I or Algebra I Honors and Teacher Recommendation.

Special Note: Earning of credit in this course precludes earning credit in Algebra II Honors. NCAA

ALGEBRA II HONORS 2209/12003400
Credit 1 9-12

Algebra II Honors is a rigorous course designed to continue the study algebra and to provide the foundation for applying these skills to other mathematical and scientific fields. This course provides the necessary preparation for College Algebra. Topics shall include, but not be limited to, structure and properties of the complex number system, arithmetic and geometric sequences and series including partial sums, study of conic sections, identify and graph transformations of functions such as linear, rational, quadratic, cubic, radical, absolute value, piece-wise, polynomial, exponential, and logarithmic, describe end behavior of polynomial functions, identify discontinuities and asymptotes of rational functions, perform operations and compositions of functions, apply the Binomial Theorem, varied solution strategies for linear equations, inequalities, and systems of equations and inequalities, and varied solution strategies for variations, non-linear systems of equations, quadratic, polynomial, rational, radical, exponential and logarithmic equations.

PREREQUISITE: Algebra I or Algebra I Honors and Teacher Recommendation.

Special Note: Earning credit in this course precludes earning credit in Algebra II. NCAA

INTEGRATED MATHEMATICS III 2293/12073300
Credit 1 10-12

Integrated Mathematics is the final course in a three course sequence and is designed to develop the advanced algebraic, geometric, and statistical concepts and process that can be used and their relationships to each other. The content shall include, but not be limited to, structure and properties of the complex number system, arithmetic and geometric sequences and series, identify and graph transformations of functions such as linear, rational, quadratic, cubic, radical, absolute value, polynomial, exponential, and logarithmic, describe end behavior of polynomial functions, perform operations and compositions of functions, varied solution strategies for linear equations, inequalities, systems of equations and inequalities, variations, quadratic, polynomial, rational, radical, exponential and logarithmic equations, study of polyhedras and spheres, exploration of area and volume of solids, application of trigonometric ratios, and application of statistical concepts such as measure of central tendency, variance, and standard deviation.

PREREQUISITE: Algebra II or Algebra II Honors or Integrated Mathematics II and Teacher Recommendation.

Special Note: NCAA

TRIGONOMETRY HONORS (Paired with Analytic Geometry)
2219/12113000
Credit 1/2 11-12

Trigonometry is a one-semester course designed for the study of circular and trigonometric functions and their applications. The content shall include, but not be limited to, geometric and algebraic interpretations of vectors, operations and applications of vectors, circular and trigonometric functions and their inverses, trigonometric equations and applications, Cartesian and polar coordinate systems, basic trigonometric identities, solutions of right and oblique triangles, and trigonometric form of complex numbers.

PREREQUISITE: Geometry or Geometry Honors and Algebra II or Algebra II Honors or Integrated Mathematics III and Teacher recommendation.

Special Note: Earning credit in this course precludes the earning of credit in Pre-Calculus. NCAA

ANALYTIC GEOMETRY HONORS (Paired with Trigonometry)
2295/12063300
Credit 1/2 11-12

Analytic Geometry is a one-semester course designed to develop an understanding of the relationship between algebra, geometry, trigonometry, and discrete mathematics. The content shall include, but not be limited to, graphs of polynomial, exponential and rational functions, graphs and curve sketching, Cartesian and polar coordinate systems, equations and graphs of conic sections, analytic proofs, vectors, conic sections, including transformations of axes, equations and graphs in polar form, parametric equations and applications to real-world problem solving. **PREREQUISITE:** Trigonometry and teacher recommendation.

Special Note: Earning credit in this course precludes the earning of credit in Pre-Calculus. NCAA

PROBABILITY AND STATISTICS I
Credit 1 11-12 2230/12103000

Probability and Statistics is a full year course designed to explore the concepts of probability, elementary statistics, and hypothesis testing. Topics shall include, but not be limited to random experiments, probability concepts, permutations,

combinations, sample space, binomial, normal and exponential distributions, concepts of descriptive statistics, measures of central tendency, measures of variability, basic types of sampling, correlation and regression, hypothesis testing using the normal distribution, the t-distributions, the chi-squared distributions, the F-distributions, and applications of various nonparametric statistical tests.

PREREQUISITE: Algebra II or Integrated Mathematics III and Teacher Recommendation.

SPECIAL NOTE: Earning credit in this course precludes earning credit in AP Statistics. This course meets an academic unit for some Bright Futures Scholarship Program. NCAA

PRE-CALCULUS HONORS 2221/12023400
Credit 1 10-12

The purpose of this course is to emphasize the study of functions and other skills necessary for the study of calculus. Topics shall include, but not be limited to, polynomial, rational, exponential, inverse, logarithmic, trigonometric and circular functions, understand and use the Intermediate Value and Extreme Value Theorems, find partial sums of arithmetic and geometric series, understand and find limits, understand and apply vectors, applications of parametric and trigonometric equations, graph and apply conic sections, polar coordinates, complex numbers, and mathematical induction.

PREREQUISITE: Geometry or Geometry Honors and Algebra II or Algebra II Honors, or Integrated Mathematics III and Teacher Recommendation.

Special Note: Earning credit in this course precludes the earning of credit in Trigonometry/Analytic Geometry. NCAA

CALCULUS HONORS 2297/12023000
Credit 1 11-12

This course is designed to provide a foundation for the study of advanced mathematics. Topics shall include, but not be limited to, elementary functions, hyperbolic functions, limits and continuity, derivatives, differentiation including partial differentiation, applications of the derivative, antiderivatives, definite integrals, indeterminate forms, and applications of the integral.

PREREQUISITE: Trigonometry and Analytic Geometry or Pacesetter Mathematics or Pre-Calculus and Teacher Recommendation

Special Note: NCAA

ADVANCED PLACEMENT CALCULUS AB
2298/12023100 Credit 1 11-12

AP Calculus AB is a course designed to offer students college level mathematics under the guidelines of the Advanced Placement Program. Topics shall include, but not be limited to, elementary functions, hyperbolic functions, limits and continuity, derivatives, differentiation including partial differentiation, applications of the derivative, antiderivatives, definite integrals, indeterminate forms, and applications of the integral. The student enrolled in this course will be expected to take the Advanced Placement examination in Calculus AB.

PREREQUISITE: Trigonometry and Analytic Geometry or Pacesetter Mathematics or Pre-Calculus and Teacher Recommendation

Special Note: NCAA

ADVANCED PLACEMENT CALCULUS BC
2299/12023200 Credit 1 11-12

AP Calculus BC is a course designed to offer students college level mathematics under the guidance of the Advanced Placement Program. Topics shall include, but not be limited to, elementary functions, hyperbolic functions, limits and continuity, derivatives, differentiation including partial differentiation, applications of the derivative, antiderivatives, definite integrals, indeterminate forms, and applications of the integral, sequences of real numbers, convergence, and elementary differential equations. The student enrolled in this course will be expected to take the Advanced Placement examination in Calculus BC.

PREREQUISITE: Pre-Calculus or Advanced Placement Calculus AB and Teacher Recommendation

Special Note: NCAA

ADVANCED PLACEMENT STATISTICS
2238/12103200 Credit 1 11-12

AP Statistics is a course designed to give students college level mathematics under the guidance of the Advanced Placement Program. The purpose of this course is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes:

- * Exploring Data: Describing patterns and departures from patterns
- * Sampling and Experimentation: Planning and conducting a study
- * Anticipating Patterns: Exploring random phenomena using probability and simulation
- * Statistical Inference: Estimating population parameters and testing hypotheses

The student enrolled in this course will be expected to take the Advanced Placement Examination in Statistics.

Students who successfully complete the course and examination may receive credit and/or advanced placement for a one-semester introductory college statistics course.

Download a complete course description from the College Board website.

PREREQUISITE: Teacher Recommendation.

Special Note: Earning credit in this course precludes earning credit in Probability and Statistics with Applications. NCAA