

## **MATHEMATICS HIGH SCHOOL CURRICULUM**

### **COURSE DESCRIPTIONS**

**Algebra I** (1 Credit) Algebra I is the first course in a college-preparatory program. Students will develop skills to solve linear equations and inequalities using one or more variables, to factor polynomials and perform operations in algebraic fractions, to perform simple operations with matrices, and to graph linear equations in the coordinate plane in order to develop general problem-solving skills.

**Algebra I Honors** (1 Credit) The Honors Algebra I course includes the content of Algebra I and also treats linear functions, solving systems of linear equations, radicals, operations with matrices, and solving quadratic equations. If time permits, some of the time is given to introductory probability. Prerequisite: Qualifying standardized test scores and previous year's math grade (no grade lower than a B).

**Geometry** (1 Credit) Geometry develops the skills of inductive and deductive reasoning through the study of properties of plane figures. Geometry also applies algebra skills to solve equations related to plane figures. It also requires mastery of two-column deductive proofs. Prerequisite: Algebra I

**Geometry Honors** (1 Credit) Geometry Honors exceeds the requirements of the regular geometry course. It requires a more in-depth study of complex concepts of polygonal regions and solid figures than those offered in the regular geometry course. Prerequisites: Algebra I or Algebra I Honors, and qualifying standardized test scores, previous year's math grade (no grade lower than a B).

**Algebra II** (1 Credit) Algebra II is designed to complete the student's mastery of the basic algebraic skills learned in Algebra I and to teach the student to use these skills to solve various problems. It introduces complex numbers, masters the functions of matrices and applies matrices in solving linear equations, examines polynomial, quadratic, exponential and logarithmic functions algebraically and graphically. The foundations of trigonometry are introduced. Prerequisites: Algebra I

**Algebra II Honors** (1 Credit) The course covers the material of Algebra II, but with more emphasis on theory. The student is also introduced to linear programming. Additional selected topics of trigonometry are covered. Calculators are used to solve problems and to aid in the graphing of functions. Prerequisites: Algebra I and qualifying standardized test scores, previous year's math grade (no grade lower than a B).

**Advanced Mathematics - Functions** (1 credit) This course is designed to prepare the student for college-level instruction. It covers arithmetic, polynomials, functions and

graphs, special products and factoring, rational expressions, systems of linear equations, exponents, radicals, equations, and applications of equations. Prerequisites: Algebra II, ACT composite score of at least 15 and a Math sub-score less than 19.

**Advanced Mathematics - Precalculus** (1 Credit) The purpose of Advanced Math is to prepare students for college algebra, college trigonometry and Pre-Calculus. The course will begin with an extensive review of Algebra and Analytic Geometry. Topics covered after the review will be conics, matrices, and trigonometry. Prerequisites: Algebra II and Geometry.

**Advanced Mathematics - Precalculus Honors** (1 Credit) (Dual Enrollment through LSU - Alexandria - Math 1021/1022 - 6 College Credits)

**Math 1021**- Covers radical expressions; rational exponents; complex numbers; quadratic, absolute value; rational equations; systems of linear equations; inequalities; functions; conics; graphs; inverse, exponential, logarithmic functions; and applications. A graphing calculator is required. Prerequisites: ACT composite score of 19 or greater and a math sub-score of at least 19, or consent of the department.

**Math 1022**- This course studies solution of right triangles, reduction formulas, functions of multiple angles, trigonometric equations, inverse functions, and complex numbers. Prerequisite: Grade of B or better in Math 1021

**AP Calculus** (1 Credit) AP Calculus consists of work in calculus and related topics, comparable to courses in colleges and universities. Major topics are elementary functions, differential calculus, and integral calculus. Prerequisite: Advanced Mathematics-Precalculus Honors

**Honors Probability and Statistics** (1 Credit): This course treats basic ideas of probability, sequences and series, handling of numerical data (including displays of quantitative and categorical data), random variables, binomial and normal distributions, sampling, and statistical testing. Students will be introduced to the major concepts and tools used for collecting, analyzing, drawing conclusions from data and determining if conclusions can be applied to a population. They will explore data and anticipate patterns through production of models using probability theory and simulation; and study statistical inference by confirming models.

Prerequisite: A's and B's in four years of high school math. This course has a dual enrollment option for 3 math credits through Louisiana Tech University.