

Mathematics

3102 Algebra I

Grade Level: 9-12

Credit: 1

Recommended: Successful completion of 8th grade mathematics

Algebra I uses problem situations, physical models, and appropriate technology to extend algebraic thinking and engage student reasoning. Problem solving promotes communication and fosters connections within mathematics, to other disciplines and to the real world. At the end of the course, students will take the Algebra I End-of-Course Examination as 25% of the second semester grade. In order to graduate, a student must have a credit from Algebra I. Concepts emphasized: Algebraic properties, scientific notation, operations (real numbers, expressions, and polynomials), factoring, equations and inequalities, study of basic function characteristics and graphs (linear, quadratic, exponential), number line and coordinate plane, linear modeling, systems of equations, irrational numbers, radicals, proportionality, probability and data analysis.

3108 Geometry

Grade level: 9-12

Credit: 1

Recommended: Successful completion of Algebra I

In Geometry, students will investigate and justify geometric concepts and relationships using both inductive and deductive reasoning. A credit in Geometry is a graduation requirement. Concepts emphasized: structures of geometry, lines, angles, measurement, coordinate geometry, analysis of and relationships among of two- and three-dimensional figures, transformational geometry, congruence, similarity and proportional thinking, inductive and deductive reasoning, logic, and proof.

3108 Geometry Honors

Grade Level: 9

Credit: 1

Recommended: Successful completion of Algebra I Honors or successful completion of Algebra I and teacher recommendation.

Honors math courses move at a faster pace thus addressing additional standards. Students will explore and be expected to comprehend and apply concepts at a deeper level. TN DOE honors standard require that students are challenged with integrated experiences such as complex problem-solving, research involving reading/writing, investigations and explorations, advanced use of technology, and making connections within the discipline and to the workplace.

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3103 Algebra II

Grade Level: 9-12

Credit: 1

Recommended: Successful completion of Geometry

Algebra II, a required course for the university path, builds on the skills acquired in Algebra I. The technology of the graphing calculator (required) will help students apply mathematics in problem-solving involving analysis and justification. A credit in Algebra II is one of the three math graduation requirements on the university path. Technology path students who enter high school in 2005 or later must have at least one of the following: Technical Geometry, Geometry, or Algebra II credit. Concepts emphasized: analysis of function families (linear and non-linear) and their graphs, systems of equations, quadratics, complex number system, probability, data analysis, logarithmic and exponential functions, basic trigonometry including the unit circle and graphs of the trigonometric functions, and mathematical modeling.

3103 Algebra II Honors

Grade Level: 10

Credit: 1

Recommended: Successful completion of Geometry Honors, or teacher recommendation

Honors math courses move at a faster pace thus addressing additional standards. Students will explore and be expected to comprehend and apply concepts at a deeper level. TN DOE honors standard require that students are challenged with integrated experiences such as complex problem-solving, research involving reading/writing, investigations and explorations, advanced use of technology, and making connections within the discipline and to the workplace.

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3124 Advanced Algebra & Trigonometry

Grade Level: 11-12

Credit: 1

Recommended: Successful completion of Algebra II

Advanced Algebra with Trigonometry is an advanced mathematics course that extends algebraic concepts and applications. It introduces and develops the concepts of trigonometric functions and their applications. A graphing calculator is required. Concepts emphasized: a variety of relations, functions, graphs, and transformations; inequalities and equations; probability, counting procedures and data analysis; matrices, networks; sequences and series.

3126 Pre-Calculus

Grade Level: 11-12

Credit: 1

Recommended: Successful completion of Algebra II

Pre-calculus is an advanced mathematics course using meaningful problems and appropriate technologies to build upon the study of functions and algebraic concepts in order to develop the underpinnings of calculus. Concepts emphasized: trigonometric functions and trigonometric in problem-solving; vectors; complex numbers; algebraic functions, their characteristics, graphs, transformations; limits; data analysis, modeling, and predicting exponential and logarithmic functions; applications of conic sections; recursive and explicit sequences; series and sums.

3126 Pre-Calculus Honors

Grade Level: 11

Credit: 1

Recommended: Successful completion of Algebra II Honors or teacher recommendation

Honors math courses move at a faster pace thus addressing additional standards. Students will explore and be expected to comprehend and apply concepts at a deeper level. TN DOE honors standard require that students are challenged with integrated experiences such as complex problem-solving, research involving reading/writing, investigations and explorations, advanced use of technology, and making connections within the discipline and to the workplace.

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3136 Probability and Statistics

Grade Level: 11-12

Credit: 0.5-1

Recommended: Successful completion of Algebra II or Algebra II Honors

In Statistics, students use appropriate technology to study probability, descriptive statistics, and inferential statistics. This course prepares students for a major/career involving research, such as history, psychology, economics, journalism, statistics or education. Concepts emphasized: collecting, displaying, interpreting, and analyzing data; surveys and experimental design; drawing conclusions about a population from a sample and predicting with data.

3129 AP Statistics

Grade Level: 11-12

Credit: 1

Recommended: Successful completion of Algebra II Honors or teacher recommendation

The AP Statistics course introduces students to the major concepts and tools for collecting, interpreting, analyzing and drawing conclusions from data. Students may be granted credit or advanced placement or both for an introductory college statistics based on the AP Exam score. A graphing calculator is required for study during the course as well as for the AP Exam. This course prepares students for a major/career involving research, such as history, psychology, economics, journalism, statistics or education. Concepts emphasized: data exploration; sampling and experimentation; probability, probability distributions, and simulation; statistical inference.

3127 AP Calculus (AB)

Grade Level: 11-12

Credit: 1

Recommended: Successful completion of Pre-Calculus or teacher recommendation

AP Calculus AB primarily focuses on the development of the concepts of limit, differential and integral calculus. In theory and problem-solving, students gain experience with methods and applications. As the course emphasizes a multi-representational approach to calculus with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally, a graphing calculator is required for this course. In May students will take the College Board AP Calculus AB examination; many universities grant credit based on the score attained. Concepts emphasized: the derivative as a limit and rate of change and its applications; function analysis and curve sketching; Fundamental Theorem of Calculus; the definite integral and its applications; differential equations.

3128 AP Calculus (BC)

Grade Level: 11-12

Credit: .5

Recommended: B or higher in Calculus AP (AB)

AP Calculus BC is an extension of Calculus AB rather than an enhancement; common topics require a similar depth of understanding. A graphing calculator is required for this course. In May students will take the College Board AP Calculus BC examination; many universities grant credit based on the score attained. Calculus BC includes concepts of the AB course as well as additional concepts beyond those of AB course: further applications of integrals, parametric, polar, and vector functions; sequences, series, and polynomial approximations; advanced techniques of integration.

3197 ACT Mathematics

Grade Level: 11-12

Credit: .5 elective

Recommended: Successful completion of Algebra II

Under the direction of a content teacher, students will complete practice tests which will be utilized to inform the teacher of instructional needs.. They will spend the semester with instruction on the essential skills and competencies that are indicated, review other essential ACT assessed skills, complete practice tests and exercises, and review basic test-taking skills.