

### PRE-ALGEBRA I BASIC

Grade: 9      Credit: 1      Course #1233

Prerequisite: Committee Placement

This course is an introduction to basic algebraic concepts including problem-solving using integers, order of operations, exponential notation, properties and equations.

### ALGEBRA I

Grade: 9      Credit: 1      Course #1203

The focus of Algebra I is on problem-solving and practical applications of algebraic principles in a variety of real-world situations. This course will include the study of the real number system, algebraic representation, solutions and evaluation of problem situations, graphing to interpret linear relations, functions and inequalities, quadratic equations, systems of equations, polynomials, sequences, and exponential functions. **STAAR End of Course Exam required for Graduation.**

### ALGEBRA I PRE-AP

Grade: 9      Credit: 1      Course #1204

The focus of Algebra I is on problem-solving and practical application of algebraic principles in a variety of real-world situations. This course will include the study of the real number system, algebraic representation, solutions and evaluation of problem situations, graphing to interpret linear relations, functions and inequalities, quadratic equations, systems of equations, polynomials, sequences, and exponential functions. The Pre-AP course is differentiated from the core curriculum in algebra I through pacing, project-based learning experiences, and a greater emphasis on foundations for future Pre-AP and AP mathematics classes. Algebra I Pre-AP covers topics in greater depth and complexity than regular Algebra I; therefore, a recommended guideline for student enrollment in this course is an 85+ average in 8th grade mathematics. **STAAR End of Course Exam required for Graduation.**

### ALGEBRA I BASIC

Grade: 9      Credit: 1      Course #1201

Prerequisite: Pre-Algebra I Basic and Committee Placement

This course is a continuation of the basic algebraic concepts of problem-solving using integers, order of operations, exponential notation, properties and equations. Students will be administered the **STAAR EOC for Algebra I** at the conclusion of this course.

### GEOMETRY

Grades: 9-10      Credit: 1      Course #1207

Prerequisite: Algebra I

This course emphasizes the connection between Geometry and Algebra, strengthens the student's ability to formulate and analyze problems, and stresses connections among the various approaches within geometry: synthetic, coordinate, and transformational. Topics include axiomatic systems, lines, angles, triangles, circles, other polygons, solid geometry, measurement, and probability.

### GEOMETRY PRE-AP

Grades: 9-10      Credit: 1      Course #1208

Prerequisite: Algebra I

This course emphasizes the connection between Geometry and Algebra, strengthens the student's ability to formulate and analyze problems, and stresses connections among the various approaches within geometry: synthetic, coordinate, and transformational. Topics include axiomatic systems, lines, angles, triangles, circles, other polygons, solid geometry, measurement and probability. The Pre-AP is differentiated from the on-level curriculum in geometry through pacing, a greater emphasis on formal

proof, and enrichment activities; therefore, a recommended guideline for student enrollment in this course is an 85+ average in Algebra I.

### **GEOMETRY BASIC**

**Grades: 10      Credit: 1      Course #1205**

**Prerequisite: Committee Placement**

The focus of this course is on the fundamentals of geometry with emphasis on problem-solving and real-life application of geometric concepts. Topics include angle measurement and relationships, triangles and congruence, parallel lines, quadrilaterals, similarity and scale, polygons and area, circles, space figures, and surface area/volume.

### **ALGEBRA II**

**Grades: 9-12      Credit: 1      Course #1213**

**Prerequisite: Algebra I**

This course focuses on the concepts of functions and relations, with emphasis on linear, quadratic, cubic, exponential, logarithmic, radical, and rational functions. The student will apply algebraic concepts to a variety of real-world situations that can be modeled mathematically.

### **ALGEBRA II Honors**

**Grades: 9-11      Credit: 1      Course #1214**

**Prerequisite: Algebra I**

This course focuses on the concepts of functions and relations, with emphasis on linear, quadratic, cubic, exponential, logarithmic, radical, and rational functions. The student will apply algebraic concepts to a variety of real-world situations that can be modeled mathematically. This Honors course will cover the topics of Algebra II in greater depth and complexity with supplemental material in appropriate areas; therefore, a recommended guideline for student enrollment in this course is an 85+ average in Geometry Pre-AP with plans to take Pre-Calculus (Honors or Onramps) and AP Calculus.

### **COLLEGE ALGEBRA M301 (UNIVERSITY OF TEXAS ONRAMPS DUAL-ENROLLMENT)**

**Grades: 10-12      Credit: 1      Course #1262**

**Prerequisite: Algebra I and Geometry**

In this course, students deepen their critical thinking skills and develop their ability to persist through challenges as they explore function families: Linear, Absolute Value, Quadratic, Polynomial, Radical, Rational, Exponential, and Logarithmic. Students analyze data algebraically and with technology while developing their knowledge of properties of functions, matrices and systems of equations, and complex numbers. The pedagogy of the course, Inquiry-Based Learning, encourages students to take an active role in the construction of their learning. This learning will be accomplished by abstraction, generalization, problem-solving, and modeling. [Click here for more information.](#)

### **MATH MODELS WITH APPLICATIONS**

**Grades: 10-12      Credit: 1      Course #1211**

**Prerequisite: Algebra I and teacher recommendation**

**This course does NOT count as a core course math credit for NCAA college-bound student-athletes.**

This course provides a path for students to succeed in Algebra II and prepares them for various post-secondary choices. Students learn to apply mathematics through experiences in personal finance, science, engineering, fine arts, and social sciences. Students use algebraic, graphical, and geometric reasoning to recognize patterns and structure, model information, solve problems, and communicate solutions. Students will select from tools such as physical objects; manipulatives; technology, including

graphing calculators, data collection devices, and computers; and paper and pencil and from methods such as algebraic techniques, geometric reasoning, patterns, and mental math to solve problems.

### **BASIC MATH MODELS**

**Grades: 9-12    Credit: 1    Course #1230**

**Prerequisite: Committee Placement**

This multi-year course will provide students with math skills needed in everyday living. Topics will include earnings (wages, commissions, fringe benefits), taxes (income, Social Security, sales), budgeting (checking accounts, housing, transportation), personal investments, and consumer credit (loans, credit cards).

### **ADVANCED OPTIONS IN MATHEMATICS**

#### **PRECALCULUS**

**Grades: 10-12    Credit: 1    Course #1216**

**Prerequisite: Geometry, Algebra II**

This course extends the analysis and understanding of functions studied in Algebra II and also expands the student's repertoire of functions to include polynomial, rational, periodic, and piecewise-defined functions. Students will also study trigonometric functions and inverses, identities and equations, as well as solve triangles and examine applications of trigonometric functions. Additional topics studied include conic sections, sequences and series, vectors, parametric equations, polar coordinates, and limits.

#### **AP PRECALCULUS**

**Grades: 10-12    Credit: 1    Course #1265**

**Prerequisite: Geometry, Algebra II**

AP Precalculus centers on functions modeling dynamic phenomena. This research-based exploration of functions is designed to better prepare students for college-level calculus and provide grounding for other mathematics and science courses. In this course, students study a broad spectrum of function types that are foundational for careers in mathematics, physics, biology, health science, social science, and data science. Units of study include Polynomial and Rational Functions, Exponential and Logarithmic Functions, Trigonometric and Polar Functions and Functions Involving Parameters, Vectors, and Matrices.

#### **PRECALCULUS ONRAMPS (UNIVERSITY OF TEXAS DUAL-ENROLLMENT)**

**Grades: 10-12    Credit: 1    Course #1261**

**Prerequisite: Geometry, Algebra II**

**DISCOVERY PRE-CALCULUS: PREPARATION FOR CALCULUS** Students will deepen and extend their knowledge of functions, graphs, and equations from their high school algebra and geometry courses so they can successfully work with the concepts in a rigorous university-level calculus course. This course is designed to push students well beyond "drill and kill" type exercises, with an emphasis on unpacking mathematical definitions and making logical arguments WITH their peers. Each unit consists of a series of explorations designed to engage students and empower them to develop their problem-solving skills. In each exploration, students will create connections with prior concepts in developing the current topic. Students will experience a high-quality curriculum designed by the faculty at The University of Texas at Austin. Students can earn three hours of UT credit with feedback and assessment provided by UT course staff. [Click here for more information.](#)

#### **COLLEGE PREP MATH**

**Grades: 12    Credit: 1    Course #1227**

**Prerequisite: Committee Placement**

**This course does NOT count as a core course math credit for NCAA college-bound student-athletes.**

This course is designed for students who have not met math college ready scores on TSIA2, ACT, or SAT. It is an in-depth study that includes applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included. This course should prepare students for math placement exams. Upon successful completion of the course and final exam the student will receive TSI Waiver in math at ACC.

**STATISTICS & BUSINESS DECISION MAKING**

**Grade: 10-12   Credit: 1   Course #1231**

**Prerequisite: Algebra II**

Statistics and Business Decision Making is an introduction to statistics and the application of statistics to business decision-making. Students will use statistics to make business decisions. Students will determine the appropriateness of the methods used to collect data to ensure conclusions are valid.

**STATISTICAL REASONING IN SPORTS**

**Grade: 10-12   Credit: 1   Course #1220**

**Prerequisite: Algebra II**

Statistical Reasoning in Sports is an introduction to statistics and the application of statistics to the sports industry. Students will explore and use statistics to make decisions on sports related topics. Students will determine the appropriateness of the methods used to collect data to ensure conclusions are valid.

**STATISTICS ONRAMPS - ELEMENTARY STATISTICAL METHODS (UNIVERSITY OF TEXAS ONRAMPS DUAL-ENROLLMENT)**

**Grades: 11-12   Credit: 1   Course #1263**

**Prerequisite: Algebra I; Recommended: Geometry and Algebra II**

In this introductory statistics course, high school students have the opportunity to develop the quantitative reasoning skills and habits of mind necessary to succeed in higher education. This course will hone relevant mathematical and critical thinking skills through scaffolded learning experiences and statistical methodologies. Students will learn the foundations of data science by engaging in hands-on analysis of real data, methods to extract key insights and coding skills aligned to the expectations of higher education and today's workplace. Students will experience interactive applications built into the high-quality curriculum designed by the faculty at The University of Texas at Austin, allowing them to discover a more intuitive understanding of concepts. Collaborative problem-solving will be used to strengthen mathematical connections while individual depth of understanding will be reflected in regular assessments. Students can earn three hours of UT credit with feedback and assessment provided by UT course staff. [Click here for more information.](#)

**AP STATISTICS**

**Grade: 10-12   Credit: 1   Course #1219**

**Prerequisite: Algebra II**

This college-level course prepares students for the Statistics AP Advanced Placement exam given in May each year. The course is equivalent to a one-semester introductory, non-calculus- based college course in statistics. This course will introduce students to four broad conceptual themes: Exploring Data, Planning a Study, Anticipating Patterns, and Statistical Inference. This course is writing-intensive, requiring students to write in a variety of modes and styles.

**AP CALCULUS AB**

**Grades: 11-12 Credit: 1 Course #1217**

**Prerequisite: Pre-Calculus**

This college-level course prepares students for the Calculus AB Advanced Placement Exam given in May each year. This course emphasizes a multi-representational approach to calculus, with concepts, results, and problems being expressed geometrically, numerically, analytically, and verbally. Topics covered include functions and limits, derivatives and their applications, integration methods, and applications.

**AP CALCULUS BC (Includes AP Calculus AB)**

**Grades: 11-12 Credit: 2 1 (Correction 9/23/21) Course #1258**

**Prerequisite: Pre-Calculus**

This college-level course prepares students for the Calculus BC Advanced Placement Exam given in May each year. This course emphasizes a multi-representational approach to calculus, with concepts, results, and problems being expressed geometrically, numerically, analytically, and verbally. In addition to the topics covered in Calculus AB listed above, topics to be covered include parametric, polar, and vector functions, polynomial approximations, and series. Single-blocked Calculus BC AP is for the most advanced students who wish to take both AB and BC Calculus in one academic calendar year at an extremely advanced speed where there will be little to no review days before tests and there will be more independent work required outside the school day to complete all topics.

**Note: Students can earn 1 credit for Calculus AB and 1 credit for Calculus BC, if they have not previously received credit for AP Calculus AB (1217).**

**LINEAR ALGEBRA (Advanced HONORS)**

**Grade: 11-12 Credit .5 (one semester)**

**Course #1218**

**Prerequisite: Precalculus**

This course will introduce students to selected topics from a typical college Linear Algebra course and prepare students for college-level mathematics. Topics covered will include matrix and vector arithmetic, systems of equations, linear independence, vector spaces, linear transformations, the eigenvalue problem, and selected topics in modern algebra. This course is beneficial for students enrolled in computer science courses.

**MULTIVARIABLE CALCULUS (Advanced HONORS)**

**Grade: 11-12 Credit: .5 (one semester) Course #1226**

**Prerequisite: AP Calculus AB or Concurrent Enrollment in AP Calculus BC**

This course in vector calculus will include vector-valued functions, functions of several variables, multiple integrations, vector analysis, ordinary differential equations, and selected topics in college-level mathematics.

**AP COMPUTER SCIENCE A**

**Grade: 10-12 Credit: 2 Course #1604**

**Prerequisites: AP Computer Science Principles or Computer Science OnRamps**

**This course does NOT count as a core course math credit for NCAA college-bound student-athletes.**

This is a fast-paced college-level programming class that teaches the Java programming language in detail. We write thousands of lines of code and cover several abstract concepts of Java. This course prepares students to take the Computer Science A AP examination. Topics include designing and implementing computer solutions to problems, learning well-known algorithms and data structures, and coding fluently in Java. The concepts of inheritance, polymorphism, data abstraction and recursion will be emphasized. The AP Computer Science test is 3 hours. 40 multiple choice questions - 1.5 hours (50% of score), 4 Free-response questions - 1.5 hours (50% of score). The test is all on paper, and the free-response questions are handwritten segments of code.

**Note: Satisfies 1 LOTE + 1 Advanced Math graduation requirement.**

### **DIGITAL ELECTRONICS (HONORS)**

**Grade: 10–12   Credit: 1   Course #1653**

**Prerequisites: Geometry and Introduction to Engineering Design (IED)**

**This course does NOT count as a core course math credit for NCAA college-bound student-athletes.**

After beginning with an introductory unit into basic electrical fundamentals, the Digital Electronics course transitions into the digital focus of electronics. In the second unit of the course, the students build fun and engaging projects such as a voting machine and a fireplace control circuit as they learn principles of combinational logic. The students are then introduced to sequential logic as they build projects such as a burglar alarm, and a 60-second timer. The fourth major unit of this class introduces the development of circuits based upon microcontrollers as students build a toll booth gate and copier jam detector. As the class learns digital electronics concepts, circuits are first prototyped virtually using circuit design software called Multi-Sim and then built live either on a breadboard or with the use of a microcontroller. Students do not need to have any prior knowledge of electronics before taking this course. Students will be required to take an End-of-Course exam administered by Project Lead the Way (PLTW). The exam is composed of 65 multiple choice questions with an 80-minute time limit. **NOTE: Course satisfies 1 Advanced Math graduation requirement. This course requires a course fee.**

### **MATH ALTERNATE COURSES**

Students enrolled in Math Alternate courses will continue to increase and refine basic knowledge and understanding of functional math skills related to number pre-operations, measurement, time and money which focus on prerequisite skills needed to access enrolled grade-level TEKS.

#### **LIFE SKILLS PRE-ALGEBRA I**

**Grade: 9   Credit: 1**

**Prerequisite: Committee Placement**

This course covers the functional academic math skills of money, time, consumer skills, money management, and practical application of basic operations.

#### **LIFE SKILLS ALGEBRA I**

**Grade: 9-10   Credit: 1**

**Prerequisite: Committee Placement**

This course covers the functional academic math skills with emphasis on the application of mathematical operations, symbols, problem-solving, and estimation skills.

#### **LIFE SKILLS GEOMETRY**

**Grade: 10-11   Credit: 1**

**Prerequisite: Committee Placement**

This course covers the functional academic math skills with emphasis on the generalization skills of mathematical operations, symbols, problem-solving, and estimation skills.

#### **LIFE SKILLS MATH MODELS W/APPLICATIONS**

**Grade: 11-12   Credit: 1**

**Prerequisite: Committee Placement**

This course covers the functional academic math skills with emphasis on the generalization skills of mathematical operations, symbols, problem-solving, and estimation skills. Topics may include personal finance (e.g., shopping, budgets, and banking), as well as the connections among these topics to solve real-life scenarios.

#### **FUNCTIONAL PRE-ALGEBRA I**

**Grade: 9      Credit: 1**

**Prerequisite: Committee Placement**

This course covers the functional academic math skills of money, time, consumer skills, money management, and practical application of basic operations.

#### **FUNCTIONAL ALGEBRA I**

**Grade: 9-10      Credit: 1**

**Prerequisite: Committee Placement**

This course covers the functional academic math skills with emphasis on the application of mathematical operations, symbols, problem-solving, and estimation skills.

#### **FUNCTIONAL GEOMETRY**

**Grade: 10-11      Credit: 1**

**Prerequisite: Committee Placement**

This course covers the functional academic math skills with emphasis on the generalization skills of mathematical operations, symbols, problem-solving, and estimation skills.

#### **FUNCTIONAL MATH MODELS W/APPLICATIONS**

**Grade: 11-12      Credit: 1**

**Prerequisite: Committee Placement**

This course covers the functional academic math skills with emphasis on the generalization skills of mathematical operations, symbols, problem-solving, and estimation skills. Topics may include personal finance (e.g., shopping, budgets, and banking), as well as the connections among these topics to solve real-life scenarios.