

Mathematics

Course Name	Credits	Grade Levels	Required Prerequisites
Algebra I	1	9	Math, Grade 8 or its equivalent
Algebra I Pre-AP	1	9	Math, Grade 8 or its equivalent See Suggested Guidelines
Geometry	1	9-12	Algebra I
Geometry Pre-AP	1	9-12	Algebra I See Suggested Guidelines
Mathematical Models with Applications	1	10-12	Algebra I
Algebra II	1	10-12	Algebra I
Algebra II Pre-AP	1	10-12	Algebra I See Suggested Guidelines
Accounting II (CTE)	1	11-12	Accounting I-Is not accepted by NCAA as a CORE Math. Alg, 1, Geom.
Advanced Quantitative Reasoning	1	11-12	Geometry and Algebra II
Algebraic Reasoning	1	10-12	Algebra I
Digital Electronics (CTE)	1	10-12	Algebra I, Geometry and IED
Dollars and Sense (CTE) (LOA)	.5	10-12	Algebra I (only offered at LOA) Math elective (CTE) Math elective
Money Matters (LOA)	1	10-12	Algebra I, Geometry (only offered at LOA)
Precalculus	1	11-12	Algebra I, Geometry and Algebra II
Precalculus Pre-AP	1	11-12	Algebra I, Geometry and Algebra II See Suggested Guidelines
Precalculus – UT OnRamps – Dual Credit	1 HS credit 3 hours college credit	11-12	*UT OnRamps Admissions Standards *Students will receive high school credit for: Precalculus *Students will receive UT credit for: UT Math 305G
Calculus – Independent Study in Mathematics	1	11-12	Precalculus
AP Calculus AB	1	11-12	Precalculus See Suggested Guidelines
AP Calculus BC	1	11-12	Precalculus See Suggested Guidelines
College Prep Math	1	11-12	Algebra II

Statistics	1	10-12	Algebra I
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Statistics – UT OnRamps – Dual Credit	1 HS credit 3 hours college credit	11-12	*UT OnRamps Admissions Standards *Students will receive high school credit for: Statistics *Students will receive UT credit for: UT SDS 302
AP Statistics	1	11-12	Recommended: Geometry and Algebra II See Suggested Guidelines
AP Computer Science A	1	11-12	Required: Algebra II Recommended: AP Computer Science Principles or Computer Programming I/II or Computer Science II
Financial Math (CTE)	1	12	Required: Alg. 1, Geom, 3 rd math. This is a 4 th math. Is not accepted by NCAA as a CORE math.

Suggested Guidelines for Mathematics Pre-AP courses

- Successful completion of previous year's Pre-AP mathematics with an average of 85 or above.
- Successful completion of previous year's regular mathematics with an average of 90 or above.
- Student should have strong personal commitment to accomplishing goals and objectives of the course.
- Student encouraged to seek teacher advisement.
- Student should have passed STAAR Mathematics.

Suggested Guidelines for Mathematics AP courses

- Successful completion of previous year's Pre-AP mathematics with an average of 85 or above.
- Successful completion of previous year's regular mathematics with an average of 90 or above.
- Student should have strong personal commitment to accomplishing goals and objectives of the course.
- Student should have high academic interest and work ethic in mathematics.
- Student encouraged to seek teacher advisement.
- Student **must have passed** STAAR EOC in Mathematics.

The curriculum for AP courses is prescribed by the College Board. For AP course information, access

<https://apcentral.collegeboard.org/about-ap/ap-a-glance>

Algebra I

Course Number: M100.MY

Grade Placement: 9

Prerequisite: Mathematics, grade 8 or its equivalent

Credit: 1

PEIMS#: 03100500

In Algebra I, students will build on the knowledge and skills for mathematics in Grades 6-8, which provide a foundation in linear relationships, number and operations, and proportionality. Students will study linear, quadratic, and exponential functions and their related transformations, equations, and associated solutions. Students will connect functions and their associated solutions in both mathematical and real-world situations. Students will use technology to collect and explore data and analyze statistical relationships. In addition, students will study polynomials of degree one and two, radical expressions, sequences, and laws of exponents. Students will generate and solve linear systems with two equations and two variables and will create new functions through transformations.

Algebra I Pre-AP

Course Number: M400.OY

Grade Placement: 9

Prerequisite: Mathematics, grade 8 or its equivalent and See Suggested Guidelines

Credit: 1

PEIMS#: 03100500

There is a strong expectation that all of the students in a Pre-AP mathematics program are preparing for mathematics courses beyond Algebra II, such as Advanced Placement Calculus and/or Statistics. Algebra I PreAP includes the basic understanding of the Algebra I standards with added rigor, depth, global connections, multiple representations (verbal, algebraic, numerical, graphical, physical), and expectations of sophistication in student work. Students who enroll in this course should expect a more rigorous and accelerated program than in a regular course. Students will focus on skills required for the Advanced Placement exam. **Students will be required to take the STAAR Algebra I End-of-Course assessment for this course. A Pre-AP Letter of Understanding must be submitted at the start of the school year in order for students to take this course.**

Geometry

Course Number: M400.MY

Grade Placement: 9-12

Prerequisite: Algebra I

Credit: 1

PEIMS#: 03100700

In Geometry, students will build on the knowledge and skills for mathematics in Kindergarten-Grade 8 and Algebra I to strengthen their mathematical reasoning skills in geometric contexts. Within the course, students will begin to focus on more precise terminology, symbolic representations, and the development of proofs. Students will explore concepts covering coordinate and transformational geometry; logical argument and constructions; proof and congruence; similarity, proof, and trigonometry; two- and three-dimensional figures; circles; and probability. Students will connect previous knowledge from Algebra I to Geometry through the coordinate and transformational geometry strand. In the logical arguments and constructions strand, students are expected to create formal constructions using a straight edge and compass. Though this course is primarily Euclidean geometry, students should complete the course with an understanding that non-Euclidean geometries exist. In proof and congruence, students will use deductive reasoning to justify, prove and apply theorems about geometric figures. Throughout the standards, the term "prove" means a formal proof to be shown in a paragraph, a flow chart, or two-column formats. Proportionality is the unifying component of the similarity, proof, and trigonometry strand. Students will use their proportional reasoning skills to prove and apply theorems and solve problems in this strand. The two- and three-dimensional figure strand focuses on the application of formulas in multi-step situations since students have developed background knowledge in two- and three-dimensional figures. Using patterns to identify geometric properties, students will apply theorems about circles to determine relationships between special segments and angles in circles. Due to the emphasis of probability and statistics in the college and career readiness standards, standards dealing with probability have been added to the geometry curriculum to ensure students have proper exposure to these topics before pursuing their post-secondary education.

Geometry Pre-AP

Course Number: M400.PY

Grade Placement: 9-12

Prerequisite: Algebra I and See Suggested Guidelines

Credit: 1

PEIMS#: 03100700

There is a strong expectation that all of the students in a Pre-AP mathematics program are preparing for mathematics courses beyond Algebra II, such as Advanced Placement Calculus and/or Statistics. Geometry Pre-AP includes the basic understanding of the Geometry standards with added rigor, depth, global connections, multiple representations (verbal, algebraic, numerical, graphical, physical), and expectations of sophistication in student work. Students who enroll in this course should expect a more rigorous and accelerated program than in a regular course. Students will focus on skills required for the Advanced Placement exam. **A Pre-AP Letter of**

Understanding must be submitted at the start of the school year in order for students to take this course.

Mathematical Models with Applications

Course Number: M600.MY

Grade Placement: 10-12

Prerequisite: Algebra I

Credit: 1

PEIMS#: 03102400

Mathematical Models with Applications is designed to build on the knowledge and skills for mathematics in Kindergarten-Grade 8 and Algebra I. This mathematics 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.

Algebra II

Course Number: M200.MY

Grade Placement: 10-12

Prerequisite: Algebra I

Credit: 1

PEIMS#: 03100600

In Algebra II, students will build on the knowledge and skills for mathematics in Kindergarten-Grade 8 and Algebra I. Students will broaden their knowledge of quadratic functions, exponential functions, and systems of equations. Students will study logarithmic, square root, cubic, cube root, absolute value, rational functions, and their related equations. Students will connect functions to their inverses and associated equations and solutions in both mathematical and real-world situations. In addition, students will extend their knowledge of data analysis and numeric and algebraic methods. ****Students who struggle with mathematics courses should consider taking Algebraic Reasoning or Mathematical Models with Applications before Algebra II. ****

Algebra II Pre-AP

Course Number: M200.PY

Grade Placement: 10-12

Prerequisite: Algebra I and See Suggested Guidelines

Credit: 1

PEIMS#: 03100600

There is a strong expectation that all of the students in a Pre-AP mathematics program are preparing for mathematics courses beyond Algebra II, such as Advanced Placement Calculus and/or Statistics. Algebra II Pre-AP includes the basic understanding of the Algebra II standards with added rigor, depth, global connections, multiple representations (verbal, algebraic, numerical, graphical,

physical), and expectations of sophistication in student work. Students who enroll in this course should expect a more rigorous and accelerated program than in a regular course. Students will focus on skills required for the Advanced Placement Exam. **A Pre-AP Letter of Understanding must be submitted at the start of the school year in order for students to take this course.**

Accounting II (CTE)

Course Number: CF01.1Y

Grade Placement: 11-12

Prerequisite: Accounting I

Credit: 1 math credit

PEIMS#: 13016700

In Accounting II, students will continue the investigation of the field of accounting, including how it is impacted by industry standards as well as economic, financial, technological, international, social, legal, and ethical factors. Students will reflect on this knowledge as they engage in various managerial, financial, and operational accounting activities. Students will formulate, interpret, and communicate financial information for use in management decision making. Students will use equations, graphical representations, accounting tools, spreadsheet software, and accounting systems in real-world situations to maintain, monitor, control, and plan the use of financial resources. Students will have the opportunity to earn their QuickBooks certification. This course is also listed in the Career & Technology section of this course guide. **This course will count as a mathematics credit for graduation. This course is not approved by NCAA for Core Math for Division 1 and 2 Athletes.**

Advanced Quantitative Reasoning

Course Number: M800.MY

Grade Placement: 11-12

Prerequisite: Geometry and Algebra II

Credit: 1

PEIMS#: 03102510

In Advanced Quantitative Reasoning, students will develop and apply skills necessary for college, careers, and life. Course content consists primarily of applications of high school mathematics concepts to prepare students to become well-educated and highly informed 21st century citizens. Students will develop and apply reasoning, planning, and

communication to make decisions and solve problems in applied situations involving numerical reasoning, probability, statistical analysis, finance, mathematical selection, and modeling with algebra, geometry, trigonometry, and discrete mathematics.

Algebraic Reasoning

Course Number: M830.MY

Grade Placement: 10-12

Prerequisite: Algebra I

Credit: 1

PEIMS#: 03102540

In Algebraic Reasoning, students will build on the knowledge and skills for mathematics in Kindergarten-Grade 8 and Algebra I, continue with the development of mathematical reasoning related to algebraic understandings and processes, and deepen a foundation for studies in subsequent mathematics courses. Students will broaden their knowledge of functions and relationships, including linear, quadratic, square root, rational, cubic, cube root, exponential, absolute value, and logarithmic functions. Students will study these functions through analysis and application that includes explorations of patterns and structure, number and algebraic methods, and modeling from data using tools that build to workforce and college readiness such as probes, measurement tools and software tools, including spreadsheets. **This course is not approved by NCAA for the Core Math for Division 1 and 2 athletes. This course is not offered on all campuses.**

Digital Electronics (DE) (CTE)

Course Number: CO16.1Y

Grade Placement: 10 – 12

Prerequisite: Algebra I and Geometry and Introduction to Engineering Design PLTW

Credit: 1 math credit

PEIMS#: 13037600

Digital Electronics is the study of electronic circuits that are used to process and control digital signals. In contrast to analog electronics, where information is represented by a continuously varying voltage, digital signals are represented by two discrete voltages or logic levels. This distinction allows for greater signal speed and storage capabilities and has revolutionized the world of electronics. Digital electronics is the foundation of modern electronic devices such as cellular phones, digital audio players, laptop computers, digital cameras, and high-definition televisions. The primary focus of Digital Electronics is to expose students to the design process of combinational and sequential logic design, teamwork, communication methods, engineering standards, and technical documentation. This course is also listed in the Career & Technology section of this course guide. **This course may count as a mathematics credit for graduation, pending your graduation plan.**

Precalculus

Course Number: M500.MY

Grade Placement: 11-12

Prerequisite: Algebra I, Geometry and Algebra II

Credit: 1

Location: HHS, LHS

PEIMS#: 03101100

Precalculus is the preparation for calculus. The course approaches topics from a function point of view, where appropriate, and is designed to strengthen and enhance conceptual understanding and mathematical reasoning used when modeling and solving mathematical and real-world problems. Students systematically work with functions and their multiple representations. The study of Precalculus deepens students' mathematical understanding and fluency with algebra and trigonometry and extends their ability to make connections and apply concepts and procedures at higher levels. Students investigate and explore mathematical ideas, develop multiple strategies for analyzing complex situations, and use technology to build understanding, make connections between representations, and provide support in solving problems.

Precalculus Pre-AP

Course Number: M500.PY

Grade Placement: 11-12

Prerequisite: Algebra I, Geometry, Algebra II and See Suggested Guidelines

Credit: 1

PEIMS#: 03101100

There is a strong expectation that all of the students in a Pre-AP mathematics program are preparing for Advanced Placement Calculus and/or Statistics. Precalculus Pre-AP includes the basic understanding of the pre-calculus standards with added rigor, depth, global connections, multiple representations (verbal, algebraic, numerical, graphical, physical), and expectations of sophistication in student work. Students who enroll in this course should expect a more rigorous and accelerated program than in a regular course. This is an advanced mathematics course and is geared to the needs of the serious mathematics student who intends to pursue Calculus. Students will focus on skills required for the Advanced Placement Exam. **A Pre-AP Letter of Understanding must be submitted at the start of the school year in order for students to take this course.**

Precalculus – UT OnRamps – Dual Credit

Course Number: M500.RY

Grade Placement: 11-12

Prerequisite: Algebra II & UT OnRamps Admissions Standards

Credit: 1 HS credit, 3 college credit hours

Discovery of Pre-Calculus – Preparation for Calculus – is a course in which 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 to their peers. The course is

divided into seven units, 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 must complete admissions process for UT OnRamps. This is a college course offered on Hays CISD high school campuses. Students must purchase the books required by the instructor. Students will experience high quality curriculum designed by the faculty at The University of Texas at Austin. This course is taught by a Hays CISD trained UT OnRamps faculty member.** At the end of the year long course, students with a passing grade will receive three hours college credit for UT Math 305G. Students will receive high school credit for Precalculus. ****This course will only be offered if the minimum enrollment is met. ****

Calculus - Independent Study in Mathematics

Course Number: M560.MY

Grade Placement: 11-12

Prerequisite: Precalculus and See Suggested Guidelines

Credit: 1

Location: HHS, LHS

PEIMS#: 03102500

In Calculus - Independent Study in Mathematics, students will extend their mathematical understanding beyond the Algebra II level in a specific area or areas of mathematics such as theory of equations, number theory, non-Euclidean geometry, linear algebra, advanced survey of mathematics, or history of mathematics. The emphasis on this course will be in the area of basic understandings of calculus.

AP Calculus AB

Course Number: M530.AY

Grade Placement: 11-12

Prerequisite: Precalculus and See Suggested Guidelines

Credit: 1

PEIMS#: A3100101

Students enrolled in this course are encouraged to take the Advanced Placement Exam in May for possible college credit. AP Calculus AB is roughly equivalent to a first semester college calculus course devoted to topics in differential and integral calculus. The AP course covers topics in these areas, including concepts and skills of limits, derivatives, definite integrals, and the Fundamental Theorem of Calculus. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions. Content requirements for Advanced Placement (AP) Calculus AB are prescribed in the College Board Publication *Advanced Placement Course Description Mathematics: Calculus AB, Calculus BC*, published by The College Board. Teacher recommendation is considered. **An AP Letter of Understanding must be submitted at the start of the school year in order for students to take this course.**

AP Calculus BC

Course Number: M531.AY

Grade Placement: 11-12

Prerequisite: Precalculus and See Suggested

Guidelines

Credit: 1

PEIMS#: A3100102

Students enrolled in this course are encouraged to take the Advanced Placement Exam in May for possible college credit. AP Calculus BC is roughly equivalent to both first and second semester college calculus courses and extends the content learned in AB to different types of equations and introduces the topic of sequences and series.

The AP course covers topics in differential and integral calculus, including concepts and skills of limits, derivatives, definite integrals, the Fundamental Theorem of Calculus, and series. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions. Content requirements for Advanced Placement (AP) Calculus BC are prescribed in the College Board Publication *Advanced Placement Course Description: Calculus AB, Calculus BC*, published by The College Board. Teacher recommendation is considered.

An AP Letter of Understanding must be submitted at the start of the school year in order for students to take this course.

College Prep Math

Course Number:

M700.MY

Grade Placement: 11-12

Prerequisite: Algebra I

Credit: 1

PEIMS#: CP111200

This college math prep course that will prepare students to be successful in College Algebra. Students must make a final grade of 75 or higher to be considered “college ready” and have the opportunity to take MATH 1314 without taking the TSI test. Students scoring less than 75 will be required to meet TSI requirements before enrolling in a college level course.

Statistics

Course Number: M810.MY

Grade Placement: 10-12

Prerequisite: Algebra I

Credit: 1

PEIMS#: 03102530

In Statistics, students will build on the knowledge and skills for mathematics in Kindergarten – Grade 8 and Algebra I. Students will broaden their knowledge of variability and statistical processes. Students will study sampling and experimentation, categorical and quantitative data, probability and random variables, inference, and bivariate data. Students will connect data and statistical processes to real-world situations. In addition, students will extend their knowledge of data analysis.

Statistics– UT OnRamps – Dual Credit Course

Number: M810.RY

Grade Placement: 11-12

Prerequisite: Algebra I, Geometry & Algebra II (preferred), & UT OnRamps Admissions Standards

Credit: 1 HS credit, 3 college credit hours

Data, Modeling and Inference – Statistics – is a dual-enrollment data analysis course for high school juniors and seniors seeking to develop the quantitative reasoning skills and habits of mind necessary to succeed in the higher

education environment. This course will target conceptual understanding and hone highly-relevant mathematical skills through scaffolded introduction to statistical methodologies, informal game play and strategic lab exercises that engage students in hands-on analysis of real data. Valuable programming and coding skills are acquired as a means to conducting this analyses, giving students a solid foundation in data science. Team-based problem- solving is highly valued, and assessments will guide students through self-reflective analyses of their own preparedness and depth of understanding. **Students must complete admissions process for UT OnRamps. This is a college course offered on Hays CISD high school campuses. Students must purchase the books required by the instructor. Students will experience high quality curriculum designed by the faculty at The University of Texas at Austin. This course is taught by a Hays CISD trained UT OnRamps faculty member.** At the end of the year long course, students with a passing grade will receive three hours college credit for UT SDS 302. Students will receive high school credit for Statistics. ****This course will only be offered if the minimum enrollment is met.**

Financial Math (CTE)

Course Number: CF 104.1Y

Grade Placement: 12

Prerequisite: Alg, Geom.

PEIMS# 13018000

Financial Mathematics is a course about personal money management. Students will apply critical-thinking skills to analyze personal financial decisions based on current and projected economic factors.

This is a 4th math credit, but not approved by NCAA for Core for Division 1 and 2 Athletes.

Dollars and Sense (CTE) (LOA only)

Course Number: CJ13.1S

PEIMS #: 13024300

Grade Placement: 12

Prerequisite: Algebra I

Dollars and Sense course scope and sequence within the Human Services Career Cluster® summarizes the content to be taught, and one possible order for teaching the units of instruction. Dollars and Sense focuses on consumer practices and responsibilities, money-management processes, decision-making skills, impact of technology, and preparation for human services careers.

AP Statistics

Course Number: M830.AY

Grade Placement: 11-12

Prerequisite: Geometry, Algebra II and See

Suggested Guidelines

Credit: 1

PEIMS#: A3100200

Students enrolled in this course are encouraged to take the Advanced Placement Exam in May for possible college credit.

The AP Statistics course is equivalent to a one-semester, introductory, non-calculus-based college course in statistics. The course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes in the AP Statistics course: exploring data, sampling and experimentation, anticipating patterns, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding. Content requirements for Advanced Placement (AP) Statistics are prescribed in the College Board Publication *Advanced Placement Course Description: Statistics*, published by The College Board. This course is also listed in the Career & Technology section of this course guide. **An AP Letter of Understanding must be submitted at the start of the school year in order for students to take this course.**

AP Computer Science A

Course Number: M840.AY

Grade Placement: 11 – 12

Required Prerequisite: Algebra II

Recommended Prerequisite: AP Computer Science Principles or Computer Programming I/II or Computer Science II

Credit: 1 math credit

PEIMS#: A3580100

This course counts for LOTE and Math credit.

Students enrolled in this course are encouraged to take the Advanced Placement Exam in May for possible college credit.

AP Computer Science I is equivalent to a first-semester, college-level course in computer science. The course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design using Java language. These techniques represent proven approaches for developing solutions that can scale up from small, simple problems to large, complex problems. The AP Computer Science I course curriculum is compatible with many CS1 courses in colleges and universities. Content requirements for Advanced Placement (AP) Computer Science are prescribed in the College Board Publication *Advanced Placement Course Description: Computer Science*, published by the College Board.. This course is also listed in the Career & Technology section of this course guide. **An AP Letter of Understanding must be submitted at the start of the school year in order for students to take this course. This course can count as a fourth year mathematics course.**

