

HS Math & The Foundation HS Program

Required Math Courses:

- Algebra I (Mathematics, TEKS Chapter 111)
- Geometry (Mathematics, TEKS Chapter 111)

Math Courses WITHOUT an Algebra II Prerequisite:

- Math Models with Applications (aka, MMA) (Mathematics, TEKS Chapter 111)
 - 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.
- Mathematical Applications of Food, Agriculture and Natural Resources (CTE, Chapter 130)
 - To be prepared for careers in agriculture, food, and natural resources, students must acquire technical knowledge in the discipline as well as apply academic skills in mathematics. Students should apply knowledge and skills related to mathematics, including algebra, geometry, and data analysis in the context of agriculture, food, and natural resources. To prepare for success, students are afforded opportunities to reinforce, apply, and transfer their knowledge and skills related to mathematics in a variety of contexts.
- Robotics Programming and Design (Technology Applications TEKS Chapter 126)
 - Robotics Programming and Design will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful robotic programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve problems in designing and programming robots. Through data analysis, students will identify task requirements, plan search strategies, and use robotic concepts to access, analyze, and evaluate information needed to solve problems. By using robotic knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of the principles of robotics through the study of physics, robotics, automation, and engineering design concepts.

- **Digital Electronics (CTE, Chapter 130)**
 - 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, MP3 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.
- **Locally developed math course or other activity [pursuant to TEC, §28.002 (g-1)]**
- **College Prep Math Course [pursuant to TEC, §28.014] For SENIORS only.**
 - Under Section 28.014 of the Texas Education Code, each school district is required to partner with at least one institution of higher education to develop and provide college preparatory courses in English language arts and mathematics. However, each high school within the school district is not required to offer these courses
- **Statistics (under development) (Mathematics, TEKS Chapter 111)**
- **Algebraic Reasoning (under development) (Mathematics, TEKS Chapter 111)**
- **Financial Mathematics (under development) (CTE, Chapter 130)**

Math Courses WITH an Algebra II Prerequisite:

Algebra II Recommended:

- **AP Computer Science (Technology Applications, TEKS Chapter 126)**
 - AP Computer Science A 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 A course curriculum is compatible with many CS1 courses in colleges and universities.
- **Statistics and Risk Management (CTE, Chapter 130)**
 - Introduction. Students will use a variety of graphical and numerical techniques to analyze patterns and departures from patterns to identify and manage risk that could impact an organization. Students will use probability as a tool for anticipating and forecasting data within business models to make decisions. Students will determine the appropriateness of methods used to collect data to ensure conclusions are valid.
- **AP Statistics**
 - 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.

Algebra II Required:

- **Pre-Calculus (Mathematics, TEKS Chapter 111)**
 - 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.
- **Advanced Quantitative Reasoning (aka, AQR) (Mathematics, TEKS Chapter 111)**
 - 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.
- **Independent Study in Mathematics (Mathematics, TEKS Chapter 111)**
 - In 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.
- **Discrete Math for Problem Solving (Mathematics, TEKS Chapter 111)**
 - In Discrete Mathematics for Problem Solving, students are introduced to the improved efficiency of mathematical analysis and quantitative techniques over trial-and-error approaches to management problems involving organization, scheduling, project planning, strategy, and decision making. Students will learn how mathematical topics such as graph theory, planning and scheduling, group decision making, fair division, game theory, and theory of moves can be applied to management and decision making. Students will research mathematicians of the past whose work is relevant to these topics today and read articles about current mathematicians who either teach and conduct research at major universities or work in business and industry solving real-world logistical problems. Through the study of the applications of mathematics to society's problems today, students will become better prepared for and gain an appreciation for the value of a career in mathematics.
- **Engineering Mathematics (CTE, Chapter 130)**
 - Introduction. Engineering Mathematics is a course where students solve and model robotic design problems. Students use a variety of mathematical methods and models to represent and analyze problems involving data acquisition, spatial applications, electrical measurement, manufacturing processes, materials engineering, mechanical drives, pneumatics, process control systems, quality control, and robotics with computer programming.

- Discrete Mathematics for Computer Science (Technology Applications, TEKS Chapter 126)
 - Discrete Mathematics for Computer Science provides the tools used in most areas of computer science. Exposure to the mathematical concepts and discrete structures presented in this course is essential in order to provide an adequate foundation for further study. Discrete Mathematics for Computer Science is generally listed as a core requirement for Computer Science majors. Course topics are divided into six areas: sets, functions, and relations; basic logic; proof techniques; counting basics; graphs and trees; and discrete probability. Mathematical topics are interwoven with computer science applications to enhance the students' understanding of the introduced mathematics. Students will develop the ability to see computational problems from a mathematical perspective. Introduced to a formal system (propositional and predicate logic) upon which mathematical reasoning is based, students will acquire the necessary knowledge to read and construct mathematical arguments (proofs), understand mathematical statements (theorems), and use mathematical problem-solving tools and strategies. Students will be introduced to discrete data structures such as sets, discrete functions, and relations and graphs and trees. Students will also be introduced to discrete probability and expectations.
- Mathematics Course Endorsed by an IHE [pursuant to TEC, §28.025 (b-5)]
 - Example: Dual Credit College Algebra

FAQ

Is there still a required sequence for math? For example, does a student have to take Algebra I before taking Math Models with Applications?

No. However, districts should pay close attention to prerequisite requirements when scheduling students in math courses. Please note that prerequisites for some of the high school mathematics courses will change when the revised math TEKS are implemented in the 2015-2016 school year.

FAQs?? See documents on TEAs site:

[Foundation High School Program FAQs--March 2014 \(PDF, 549KB\)](#)

[Endorsement FAQs--March 2014 \(PDF, 854KB\)](#)

[Other HB 5 FAQs](#)

Questions?

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