

MATH

9th Grade

[6030] Algebra I

[6033] Adv Algebra I

10th Grade

[6050] Geometry

[6053] Adv Geometry

11th Grade

[6070] Algebra II

[6080] Adv Algebra II

12th Grade

[6090] Adv Quantitative Reasoning

[6150] Pre-Calculus

[6160] Adv Calculus

[6203] AP Statistics

[0610] College Algebra (.5)

[0614] College Stats (.5)

[0617] College Pre Cal (.5)

Select from on level or advanced courses

Each course has a semester A and B

Successful completion of each semester earns students .5 credits

The full year is 1 credit

Fundamentals and Sheltered course equivalents for Math require approval

Bolded courses = weighted credit

Math Graduation Credits Needed for DLA=4

Additional Math Options:

Students who take Algebra I in the 8th grade are on an accelerated sequence. They have options to take an advanced math their senior year. The additional math class may earn them a STEM endorsement. Alternatively, students may chose to develop their math skills by taking a different course sequence. The math course options different from what is listed above are listed in the chart below by grade level offering. Please note prerequisites may apply in order to enroll in the course

9th

[6050] Geometry

[6053] Adv Geometry

10th

[6070] Algebra II

[6080] Adv Algebra II

11th

[0618] College Readiness Math I

[0619] College Readiness Math II

[6067] Statistics

[6090] Adv Quantitative Reasoning

[6095] Algebraic Reasoning

[6203] AP Statistics

12th

[6067] Statistics

[6070] Algebra II

[6080] Adv Algebra II

[6201] AP Calculus AB

[6202] AP Calculus BC

[0618] TCC Math for Business I

[0619] TCC Math for Business II

CTE COURSES THAT COUNT AS 3rd Math:

[1055] Computer Science A

[1224CT] Financial Math

[1272] Accounting II

Endorsements

STEM

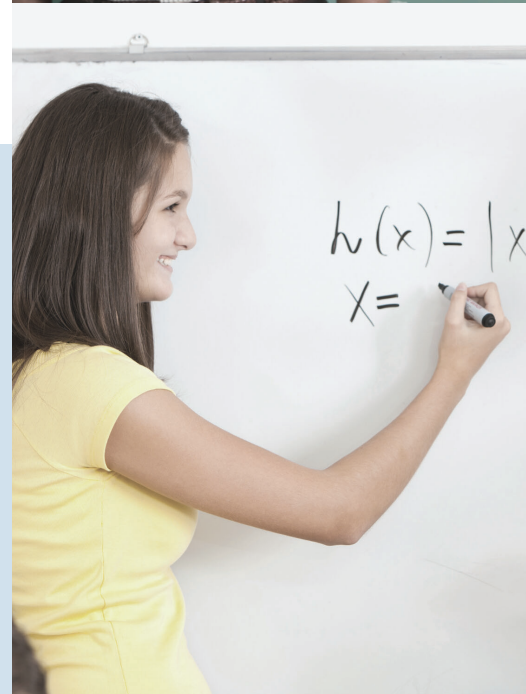
A total of five credits in mathematics

Must include:

- Algebra I
- Geometry
- Algebra II
- Two additional mathematics courses **for which Algebra II is a prerequisite**

Multidisciplinary

- Four credits in the core foundation areas to include four math credits.
- Must include English IV, Chemistry, and/or Physics



Graduation Requirements

- Foundation Plan = 3 math credits
- Two of the credits must consist of Algebra I and Geometry
- Foundation with Endorsement = 4 math credits (Foundation plus an additional math credit)
- Distinguished Level of Achievement = Foundation Plus Endorsement (4 credits which include Algebra I, Geometry, Algebra II and an additional Math credit during the 11th or 12th grade year)



Honors Ranking:

Courses identified as MATH by TEA under Chapter 74 and Chapter 111 and offered by MISD are calculated into the GPA for honors ranking (starting with Class of 2023).

FUNDAMENTALS OF ALGEBRA I**Course Number: 6000****Placement: 9-12****Credits: 1****Prerequisite: ARD Approval**

This course will study linear, quadratic, and exponential functions and their related transformations, equations, and associated solutions. Student will connect functions and their associated solutions in problem situations. Topics also covered will be polynomials of degree one and two, radical expressions, sequences, and laws of exponents. The course will include linear systems. This course encompasses a modified curriculum for Alg I.

ALGEBRA I**Course Number: 6030****Placement: 9****Credits: 1****Prerequisite: 8th grade Math**

This course will study linear, quadratic, and exponential functions and their related transformations, equations, and associated solutions. Student will connect functions and their associated solutions in problem situations. Topics also covered will be polynomials of degree one and two, radical expressions, sequences, and laws of exponents. The course will include linear systems.

ALGEBRAIC PROBLEM SOLVING**Course Number: 6032****Placement: 9-10****Credits: ½-1****Prerequisite: Concurrent Enrollment in Algebra I**

This course is scheduled concurrently with Algebra I. The purpose is to provide opportunities to deepen student numeracy, develop strategic mathematical thinking and provide opportunities to increase problem solving abilities. Students earn a state elective credit in this course.

ADVANCED ALGEBRA I**Course Number: 6033****Placement: 9****Credits: 1****Prerequisite: 8th grade Math**

In addition to material usually covered in Algebra I, topics will be expanded and taught at a more rigorous, in-depth level. Emphasis will be placed on the application of concepts and skills introduced in Algebra I. The level of instruction will focus on preparing the student for advanced mathematics courses.

FUNDAMENTALS OF GEOMETRY**Course Number: 6003****Placement: 9-12****Credits: 1****Prerequisite: ARD Approval**

Relations, properties, and measurement of surfaces, lines, and angles in one, two, and three-dimensional figures are investigated and used in this course. Students will use deductive reasoning to justify, prove formally and apply theorems about geometric figures. Probability concepts are included in this course. This course encompasses a modified curriculum for Geometry.

GEOMETRY**Course Number: 6050****Placement: 9-10****Credits: 1****Prerequisite: Algebra I**

Relations, properties, and measurement of surfaces, lines, and angles in one, two, and three-dimensional figures are investigated and used in this course. Students will use deductive reasoning to justify, prove formally and apply theorems about geometric figures. Probability concepts are included in this course.

ADVANCED GEOMETRY**Course Number: 6053****Placement: 9-10****Credits: 1****Prerequisite: Algebra I or Advanced Algebra I**

In addition to material usually covered in Geometry, topics will be expanded and taught at a more rigorous, in-depth level. Emphasis will be placed on the application of concepts and skills introduced in Geometry. The level of instruction/curriculum will focus on preparing the student for advanced placement mathematics courses.

STATISTICS**Course Number: 6067****Placement: 11-12****Credits: 1****Prerequisite: 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. **This course is recommended to take after Algebra II or Algebraic Reasoning.**

ALGEBRAIC REASONING**Course Number:** 6095**Placement:** 10-12**Credits:** 1**Prerequisite:** Algebra I

Students will broaden knowledge of functions and relationships, including linear, quadratic, square root, rational, cubic, cube root, exponential, absolute value, and logarithmic functions. Study of functions will be made 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 recommended to take after Geometry.**

FUNDAMENTALS OF ALGEBRAIC REASONING**Course Number:****Placement:** 3rd or 4th Math**Credits:** 1**Prerequisite:** ARD Approval

Students will broaden knowledge of functions and relationships, including linear, quadratic, square root, rational, cubic, cube root, exponential, absolute value, and logarithmic functions. Study of functions will be made 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 encompasses a modified curriculum for Algebraic Reasoning.

ALGEBRA II**Course Number:** 6070**Placement:** 10-12**Credits:** 1**Prerequisite:** Algebra I

This course is a continuation of the topics studied in 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 extend their knowledge of data analysis and numeric and algebraic methods. **This course is recommended to be taken after Geometry. Students must successfully complete Algebra II prior to taking a higher math class. This course (or the Advanced level) is required for a Distinguished Level of Achievement or STEM Endorsement.**

STATISTICAL REASONING IN SPORTS**(PILOT Course @Mansfield HS only 21-22)****Course Number:****Placement:** 11-12**Credits:** 1**Prerequisite:** 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 all based on examples in the world of sports. Students will connect data and statistical process to sporting situations. In addition, students will extend their knowledge of data analysis. **This course is a pilot course. It is recommended to take after Algebra II or Algebraic Reasoning. Students may not take if they have already earned a credit in Statistics, Course Number 6067.**

ADVANCED ALGEBRA II**Course Number:** 6080**Placement:** 10-11**Credits:** 1**Prerequisite:** Algebra I or Advanced Algebra I

In addition to the material usually covered in Algebra, topics will be expanded and taught at a more rigorous, in-depth level. Emphasis will be placed on the application of concepts and skills introduced in Algebra II. The level of instruction/curriculum will focus on preparing the student for further advanced placement courses. **This course is recommended to be taken after Geometry. Students must successfully complete prior to taking a higher math class.**

ADVANCED QUANTITATIVE REASONING (AQR)**Course Number:** 6090**Placement:** 11-12**Credits:** 1**Prerequisite:** Geometry, Algebra II or Advanced Algebra II

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. This course is eligible as a 5th math option for the STEM endorsement.

PRE-CALCULUS**Course Number: 6150****Placement: 11-12****Credits: 1****Prerequisite: Algebra I, Geometry, and Algebra II**

This course approaches topics from a function point of view. Students systematically work with functions and their multiple representations. 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. This course is eligible as a 5th math option for the STEM endorsement.

ADVANCED PRE-CALCULUS**Course Number: 6160****Placement: 11-12****Credits: 1****Prerequisite: Algebra I, Geometry, and Advanced Algebra II/Algebra II**

In addition to the topics studied in Pre-Calculus, topics will be expanded and taught at a more rigorous, in-depth level. Emphasis will be placed on the application of concepts and skills. The level of instruction/curriculum will focus on preparing the student for advanced placement courses. This course is eligible as a 5th math option for the STEM endorsement.

ADVANCED PLACEMENT CALCULUS AB**Course Number: 6201****Placement: 11-12****Credits: 1****Recommended Prerequisite: Advanced Pre-Calculus**

This course is designed for the student who has displayed both exceptional talent and diligence in the study of all other selected high school courses. Topics of study will include limits and continuity, derivatives, the fundamental theorem of calculus, special functions, techniques of integration, partial derivatives, and multiple integration. Analytic geometry will be included as needed. A TI-84 will be used in the classroom, and graphing calculators of this type will be required for homework. A graphing calculator with numerical differentiation and integration capabilities is required for the Advanced Placement Calculus Test. This course is the equivalent of a Calculus I course at the college level. At the conclusion of this course, students may take the Advanced Placement AB Calculus Test which provides the opportunity to earn college credit in calculus. This course is eligible as a 5th math option for the STEM endorsement.

ADVANCED PLACEMENT CALCULUS BC**Course Number: 6202****Placement: 12****Credits: 1****Recommended Prerequisite: Advanced Pre-Calculus**

This course is an expansion of the Advanced Placement Calculus AB course. It includes all topics covered in Advanced Placement Calculus AB plus additional topics. Common topics require a similar depth of understanding. This course is the equivalent of a combined Calculus I and Calculus II course at the college level. Broad concepts and widely applicable models are emphasized. The TI-84 will be used in the classroom, and graphing calculators of this type will be required for homework. Extensions to AP Calculus AB include: parametric, polar, and vector functions; use of slope fields and Euler's method to find solutions to differential equations; improper integrals and series; solving logistic equations; polynomial approximations and series, including Taylor and Maclaurin series. At the conclusion of this course, students may take the Advanced Placement BC Calculus Test which provides the opportunity to earn college credit in calculus. This course is eligible as a 5th math option for the STEM endorsement.

ADVANCED PLACEMENT STATISTICS**Course Number: 6203****Placement: 11-12****Credits: 1****Recommended Prerequisite: Algebra II and Geometry**

The purpose of this Advanced Placement course in statistics is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Therefore, AP Statistics would be an excellent choice for students interested in pursuing a career in business or medicine. Students are exposed to the four broad conceptual themes which follow: 1) Exploring data – observing patterns and departures from patterns; 2) Planning a study – deciding what and how to measure; 3) Anticipate patterns – producing models using probability and simulation; and 4) Statistical inference – confirming models. This is a communications course in which students are taught to analyze data utilizing calculators and computers. At the conclusion of this course, students may take the Advanced Placement Statistics Test which provides the opportunity to earn college credit in statistics. This course is eligible as a 5th math option for the STEM endorsement.

STAAR/EOC MATHEMATICS REMEDiation/ENRICHMENT/ACCELERATION

Course Number 6300

Placement: 9-12

Credits: ½-1

Prerequisite: None

This course will provide remediation/ enrichment/ acceleration for students who did not pass the Algebra EOC, or students who require additional support based on previous performance on State math assessments/math academic performance. This course will enable students to improve mathematical skills. This course may **not** be used to fulfill any of the math requirements for graduation

COLLEGE READINESS MATH I

Course Number: 0618

Placement: 12

Recommended Prerequisite: TSI Assessment (not required)

Credits: ½

TCC corresponding course: MATH 0361-Developmental Math I. This course will study topics in mathematics such as arithmetic operations, basic algebraic concepts and notation, geometry, and real and complex number systems. The content revisits concepts from Algebra I and Geometry to support student readiness for college level mathematics. Students that scored a 500 or below on their 11th grade PSAT would be good candidates for this course. This course follows the TCC grading guidelines. The TSI Assessment will be administered at the end of this course.

COLLEGE READINESS MATH II

Course Number: 0619

Placement: 12 Credits: ½

Prerequisite: TSI Assessment or College Readiness Math I

TCC corresponding course: MATH 0362-Intermediate Algebra (Developmental Math II)

This course is a study of relations and functions, inequalities, algebraic expressions and equations (absolute value, polynomial, radical, rational), with a special emphasis on linear and quadratic expressions and equations. The content prepares for student readiness in college level mathematics. Students that scored a 500 or below on their 11th grade PSAT would be good candidates for this course. This course follows TCC grading guidelines. **Upon successful completion of this course with a grade of 70 or above, a student will be TSI exempt with TCC for up to one year after high school graduation and may enroll into entry level TCC math courses.**

CTE COURSES:

AP COMPUTER SCIENCE A – MATH/LOTE

Course Number: 1055CA/CB

Placement: 10-12

Credits: 2 (One Math/One LOTE)

Prerequisite: AP Computer Science Principles

AP Computer Science A is an introductory college-level computer science course. Students cultivate an understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and preparation for the AP Spanish Literature exam. Emphasis is on advanced grammar, literature, and composition. Students will be prepared to take the AP test. Course taught at Home Campus or Ben Barber Innovation Academy.

FINANCIAL MATHEMATICS

Course Number: 1224CT

Placement: 10-12

Credits: 1

Prerequisites: Algebra I

This course is about personal money management. Students will apply critical-thinking skills to analyze personal financial decisions based on current and projected economic factors. Financial Mathematics will integrate career and postsecondary education planning into financial decision making. **Note: Course can be used as an additional math credit for graduation.**

ACCOUNTING II

Course Number: 1272CT

Placement: 11-12

Credits: 1

Prerequisites: Accounting I

Accounting II introduces the fundamentals of management accounting, including manufacturing and cost accounting, budgeting, accounting for managerial decision making and financial statement analysis. Students learn how to use accounting information for internal decision making and for planning and control. Because accounting knowledge is beneficial to business professionals in every discipline, this course provides them with the financial acumen necessary to make informed personal and business decisions. **Note: Course can be used as an additional math credit for graduation.** Possible Certification: +Microsoft Office Expert Excel*

DUAL CREDIT COURSES:**(TCC) ALGEBRA****Course Number: 0610****Placement: 11-12****Credits: ½****Prerequisite: Successful completion of Algebra II, 80+Overall GPA & TSI Assessment**

TCC corresponding college credit:

MATH 1314 – College Algebra (3 semester hours)

This is a regular college-level Algebra class with an in-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Students will attend TCC classes on their home campus. This course meets .5 of the fourth-year math high school graduation requirement. **A passing math TSI Assessment is required prior to enrolling in TCC classes.**

(TCC) STATISTICS**Course Number: 0614****Placement: 11-12****Credits: ½****Prerequisite: Successful completion of Algebra II, 80+ Overall GPA & TSI Assessment**

MATH 1342 – Elementary Statistical Methods (3 semester hours)

This is a regular college-level Statistics course examining collection, analysis, presentation and interpretation of data. Students will attend TCC classes on their home campus. This course meets .5 of the fourth year math high school graduation requirement. **The ELAR and math TSI Assessments must be passed before students will be allowed to enroll in TCC classes.**

(TCC) PRE-CALCULUS**Course Number: 0617****Placement: 11-12****Credits: 1****Prerequisite: Successful completion of MATH 1314 & TSI Assessment**

TCC corresponding college credit: MATH 2412 – Pre-Calculus (4 semester hours). This is a regular college-level Pre-Calculus course offering an in-depth study of algebra, trigonometry, and other topics for calculus readiness. Students will attend TCC classes on their home campus. This course meets the fourth year math high school graduation requirement. This course is double blocked. **The math TSI Assessment must be passed before students will be allowed to enroll in TCC classes.**

(TCC) MATHEMATICS FOR BUSINESS**Course Number: 0611****Placement: 12****Credits: ½****Prerequisite: 80+ Overall GPA & TSI Assessment**

TCC corresponding college credit: MATH 1324 – Mathematics for Business and Social Science (3 semester hours). This is a regular college-level mathematics course including the study of algebra, mathematics of finance, linear programming, systems of linear equations, applications to management, economics and business. Students will attend TCC classes on their home campus. **The math TSI Assessment must be passed before students will be allowed to enroll in TCC classes.**

(TCC) MATHEMATICS FOR BUSINESS II**Course Number: 0612****Placement: 12****Credits: ½****Prerequisite: Math 1324 or Math 1314**

TCC corresponding college credit: MATH 1325 – Mathematics for Business and Social Science II (3 semester hours). This is a regular college-level mathematics course including the study of limits and continuity, derivatives, graphing, and optimization, exponential and logarithmic functions, antiderivatives, integration, applications to management, economics, and business. Students will attend TCC classes on their home campus. **The math TSI Assessment must be passed before students will be allowed to enroll in TCC classes.**

SUGGESTED COLLEGE READINESS MATH PATHWAY



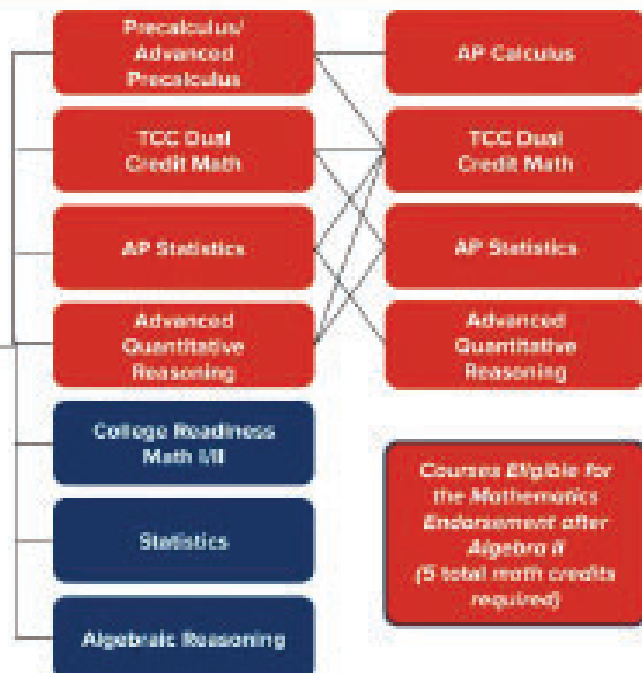
MATH ELECTIVES:

PSAT/SAT/ACT Prep Course:
 • 1/2 local elective credit
 Algebraic Problem Solving:
 (double blocked with Algebra II)
 • 1/2 state elective credit
 • Campus based scheduling

CTE COURSES ELIGIBLE FOR 3RD MATH CREDIT:

Financial
Mathematics

Accounting II



TCC DUAL CREDIT MATH COURSES:

College Algebra
College Statistics

Mathematics for Business I
Mathematics for Business II
College Precalculus

ALTERNATE COLLEGE READINESS MATH PATHWAY

