2543 Algebra I
Credit: 1
Prerequisite: Grade 8 Math or an equivalent
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. Students must have credit for both semesters of Algebra I before they can enroll in any other high school math course.

2540 Algebra I – PAP
Credit: 1
Prerequisite: Grade 8 Math or an equivalent
Algebra I PAP includes the same student objectives as Algebra I. PAP courses prepare students who intend to continue their studies in AP. This PAP course will be taught at the PAP level using College Board-approved PAP strategies. Carefully read the section describing PAP and AP in the "High School Overview" section of this catalog under "Planning Your Schedule. Students must have credit for both semesters of Algebra I before they can enroll in any other high school math course.

2643 Geometry
Credit: 1
Prerequisite: Algebra I
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 proof and congruence, students will use deductive reasoning to justify, prove and apply theorems about geometric figures.

2673 Geometry – PAP
Credit: 1
Prerequisite: Algebra I
Geometry PAP includes the same student objectives as Geometry. PAP courses prepare students who intend to continue their studies in AP. This PAP course will be taught at the PAP level using College Board-approved PAP strategies.

2743 Algebra II
Credit: 1
Prerequisite: Algebra 1; and Geometry (recommended).
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.

2773 Algebra II – PAP
Credit: 1
Prerequisite: Algebra 1; and Geometry (recommended).
Algebra II PAP includes the same student objectives as Algebra II. PAP courses prepare students who intend to continue their studies in AP. This PAP course will be taught at the PAP level using College Board-approved PAP strategies.

2843 Precalculus
Credit: 1
Prerequisite: Geometry and Algebra II
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.

2873 Precalculus – PAP
Credit: 1
Prerequisite: Geometry and Algebra II
Precalculus PAP includes the same student objectives as Precalculus with emphasis placed on greater depth and complexity of concepts. Additional topics include infinite series and introductory calculus topics. PAP courses prepare students who intend to continue their studies in AP. This PAP course will require students to dedicate themselves to study required by rigorous college-level standards.

Precalculus – Dual
2883AD (Fall)
2883BD (Spring)
2883WD (Fall) for Cohort 2022
2883XD (Spring) for Cohort 2022
(Lone Star College MATH 1316 & 2412)
Credit: 1
Prerequisite: Geometry and Algebra ll, College/University requirements. Precalculus Dual Credit gives students high school credit for Precalculus and college credit for College Trigonometry and Precalculus. The course covers trigonometric functions and their applications, solutions of right and oblique triangles, trigonometric identities and equations, inverse trigonometric functions, graphs of the trigonometric functions, vectors and polar coordinates. The second semester covers an integrated treatment of the concepts necessary for calculus beginning with a review of algebraic and transcendental functions including trigonometric functions. Topics also include the binomial theorem, analytic geometry, vector algebra, polar and parametric equations, mathematical induction and sequences and series. Semester exam exemption will not be available for this course. *Not all Dual Credit courses are offered at all campuses. This course is not eligible for semester exam exemptions.

2884 ONRAMPS Precalculus
Credit: .5-1
Prerequisite: Geometry, and Algebra II. College / University requirements.
ONRAMPS Precalculus – Dual
2884BD (Spring)
2884XD (Spring) for Cohort 2022
Credit: .5
Prerequisite: Geometry and Algebra II; students must meet the College/University requirements for the Dual credit option 2nd semester.
In preparation for Calculus or as a student's final high school math, students will deepen and extend their knowledge of functions, graphs, and equations from their high school algebra and geometry courses in order to successfully work with the concepts in a rigorous university-level Calculus course. The course is divided into seven units, each with an over-arching theme. (Functions, Rates, and Patterns, Algebra and Geometry, Exponential and Logarithmic Functions, Trigonometric Functions, Rates of Change of Functions and Limits, Coordinate Systems, Sequences and Series). Only Spring semester may be eligible for Dual credit. Refer to the section describing the Dual/Concurrent College Courses in the "High School Overview" page of this catalog.*Not all Dual Credit courses are offered at all campuses. The second semester of this course is not eligible for semester exam exemptions.

Independent Study in Math – Dual (College Algebra)
2546 AD (Fall)
2546 BD (Spring)
2546 WD (Fall) for Cohort 2022
2546 XD (Spring) for Cohort 2022
(Lone Star College MATH 1314)
Credit: 1
Prerequisite: Algebra II, College/University requirements.
This course is an in-depth study and applications of polynomial, rational, radical, absolute value, piecewise-defined, exponential and logarithm functions, equations, inequalities, graphing skills and systems of equations using matrices. Additional topics such as sequences, series, probability, conics, and inverses may be included.
Semester exam exemption will not be available for this course. *Not all Dual Credit courses are offered at all campuses. This course is not eligible for semester exam exemptions.

2893 Calculus AB – AP
Credit: 1
Prerequisite: Precalculus; Precalcalus PAP recommended.
Calculus AB AP is a course designed for college bound students who have completed four years of secondary mathematics which includes the study of algebra, geometry, trigonometry, analytic geometry, and elementary functions. Calculus AB AP is roughly equivalent to a first semester college calculus course devoted to topics in differential and integral calculus. Topics covered in the study of Calculus AB include derivatives in terms of a rate of change and local linear approximation, integrals as a limit of Riemann sums and as the net accumulation of change and the Fundamental Theorem of Calculus. Use of a graphing calculator is considered an integral part of the course and is used as an investigative tool in solving problems, interpreting results and supporting conclusions. Students taking this course will be prepared and are expected to take an AP test upon completion.

2993 Calculus BC – AP
Credit: 1
Prerequisite: Precalculus PAP;
Calculus BC AP content requirements include all Calculus AB topics plus additional topics of parametric, polar and vector functions, Euler's method, L'Hospital's Rule, Taylor series, series of constants, applications of integrals and improper integrals and solving logistic differential equations. Calculus BC AP is roughly equivalent to both first and second semester college calculus courses. Use of a graphing calculator is considered an integral part of the course and is used as an investigative tool in solving problems, interpreting results and supporting conclusions. Students taking this course will be prepared and are expected to take an AP test upon completion. Students who take the AP Calculus BC Exam receive an AP Calculus AB sub score based on their performance on the portion of the exam devoted to Calculus AB topics.

Independent Study (Calculus) – Dual
2083AD (Fall)
2083BD (Spring)
(Lone Star College MATH 2413)
Credit: 1
Prerequisite: Precalculus, College/University requirements
This course covers limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas. Semester exam exemption will not be available for this course. *Not all Dual Credit courses are offered at all campuses. This course is not eligible for semester exam exemptions.

Independent Study (Calculus I/II) – Dual
2084AD (Fall)
2084BD (Spring)
(Lone Star College MATH 2413/2414)
Credit: 1
Prerequisite: Precalculus, College/University requirements
First semester this course covers Limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas. Second semester continues with differentiation and integration of exponential and logarithmic functions, techniques of integration, applications of the definite integral, the calculus of transcendental functions, parametric equations, polar coordinates, indeterminate forms and L'Hopital's Rule, improper integrals, sequences and series. Semester exam exemption will not be available for this course. *Not all Dual Credit courses are offered at all campuses. This course is not eligible for semester exam exemptions.

2093 Statistics – AP
Credit: 1
Prerequisite: Geometry and Algebra II
Statistics AP is a course which introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students will be exposed to four broad conceptual themes of 1) exploring data which includes describing patterns and departures from patterns, 2) sampling and experimentation which includes planning and conducting a study, 3) anticipating patterns which includes exploring random phenomena using probability and 4) simulation and statistical inference which includes estimating population parameters and testing hypotheses. Students taking this course will be prepared and are expected to take the AP test upon

completion. Carefully read the section describing PAP and AP in the "High School Overview" section of this catalog under "Planning Your Schedule."

2094 ONRAMPS Statistics
Credit .5 - 1
Prerequisite: Geometry and Algebra II. College / University requirements.
ONRAMPS Statistics – Dual 2nd semester 2094BD (Spring) 2094XD for Cohort 2022 (Spring)
Students must meet the College/University requirements for the Dual credit option 2nd semester.
Prerequisite: Geometry and Algebra II, students must meet the College/University requirements for the Dual credit option 2nd semester
This is a statistics data analysis course for high school juniors or 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. Team-based problem-solving is highly valued, and assessments will guide students through self-reflective analyses of their own preparedness and depth of understanding. Only Spring semester may be eligible for Dual credit. Refer to the section describing the Dual/Concurrent College Courses in the "High School Overview" page of this catalog. *Not all Dual Credit courses are offered at all campuses. . The second semester of this course is not eligible for semester exam exemptions.

2833 Advanced Quantitative Reasoning
Credit: 1
Prerequisite: Geometry and Algebra II
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.

2783 College Preparatory Math
Credit: 1
Prerequisite: Three high school math credits, and student's "college ready" math status not confirmed by TSI or other "college ready" measures
As required in HB 5, the purpose of this course is to provide an opportunity for students to demonstrate college readiness in math so they are able to begin taking college credit bearing courses their first year of college without remedial or developmental courses. Developed in partnership with WCJC, first semester provides preparation in basic math skills required for the study of Intermediate Algebra at the college level and second semester prepares students for College Algebra. Students must earn a final exam grade of 70% or above for the award of credit for each semester. To ensure transferability of the course grade to WCJC, the student's grade for each semester must be 75 or higher. The first semester (fall) on the student transcript will correspond to Math 0308 and the second semester (spring) will correspond to Math 0312. Grades earned for this course will be used for UIL eligibility purposes. Semester exam exemption will not be available for this course.

7560 Statistics and Business Decision Making
Credit: 1
Prerequisite: Geometry and Algebra II
How can a business lessen the chances of someone becoming ill from using their products? What steps can be taken to assure all employees are safe in case of a fire? Managing these and other risks involves lessening the negative impacts and preventing financial loss and personal injuries. This course will help students start to understand what actions businesses must take to manage risk. Learn how successful businesses use statistics to forecast what may happen in the future and how to develop strategies to avoid the dangers. Also learn how to determine the appropriate methods used to collect data to ensure conclusions are valid. This course is a Career and Technical Education funded course.

8321C Digital Electronics (DE) – PLTW
Credit: 1
Prerequisite: A PLTW Engineering Specialization course
Digital Electronics is the foundation of all modern electronic devices such as cellular phones, MP3 players, laptop computers, digital cameras and high-definition televisions. The major focus of this course is to expose students to the process of combinational and sequential logic design, teamwork, communication methods, engineering standards and technical documentation. This course can earn college credit based on Articulation agreements with Rochester Institute of Technology, which are subject to change. This course is a Career and Technical Education funded course.

2593 Computer Science A – AP (Math)
5007 Comp Science A – AP (LOTE)
Credit: 1 Math credit and 1 LOTE credit
Prerequisite: Computer Science Principles
The course is an advanced computer science course that allows students to work on large-scale projects. Topics include: advanced data structures, searching/sorting algorithms, recursion, algorithm efficiency and Graphic User Interfaces. This AP course will require students to dedicate themselves to study required by rigorous college-level standards. Students taking this course will be prepared and are expected to take the AP test upon completion. Carefully read the section describing PAP and AP in the "High School Overview" section of this catalog under "Planning Your Schedule." This course requires two class periods.