HIGH SCHOOL MATH COURSE DESCRIPTIONS

Algebra I provides the development of problem solving skills and concepts that are necessary for students to succeed in subsequent mathematics courses. Students will learn to use multiple representations and justify solutions. The transition from the concrete to the abstract is an essential element of this course. Topics include: (1) Equations and Inequalities (2) Linear Functions, (3) Polynomial Operations (4) Introduction to Quadratic Functions (5) Operations with Radicals (6) Introduction to Exponential Growth Honors Algebra 1 – is a new high school offering for students wishing to move more quickly through the content and investigate more in-depth Algebraic content.

Geometry is a course that uses problem situations, physical models, and appropriate technology to investigate geometric concepts, relationships, and systems. Problem-solving situations provide all students an environment that promotes communication, engages student reasoning, and fosters connections within mathematics, to other disciplines, and to the real world. Students will use physical models to represent, explore, and develop abstract concepts. The use of appropriate technology will help students apply mathematics in an increasingly technological world. The concepts/topics emphasized in the course include measurement, geometric patterns, coordinate geometry, two- and three- dimensional figures, transformational geometry, congruence, similarity, and right triangle trigonometry.

Honors Geometry covers the same curriculum as Geometry, but in more depth. Students are assessed at a deeper level and are required to complete projects that involve open-ended investigations, constructions, and the application of constructions to develop new mathematical concepts. Non right triangle trigonometry is included.

Algebra II stresses the learning of mathematical processes in order to model real world situations. The topics studied are equations, inequalities, linear programming, quadratic equations, parabolas, complex numbers, polynomial functions, exponential and logarithmic functions, radical functions, trigonometric functions, sequences and series, and probability and statistics. This goal of this course is to further students' understanding of mathematics and prepare them for the next step in their mathematical journey. Algebra II one of the most pivotal courses in preparing for the ACT and SAT.

Honors Algebra II covers the same curriculum as Algebra 2, but in more depth. Students will encounter advanced types of problems that stretch beyond the standard Algebra II curriculum. Students investigate mathematical patterns and connections as well as real world applications. Students are assessed at a more advanced level and are required to complete investigative projects.

Bridge Math/SAILS (Seamless Alignment and Integrated Learning Support) introduces the college developmental math curriculum in this course in order for students to get a head start on their college career. Students who score less than a 19 on the ACT Math section are required to take this course their senior year. Students who successfully complete this course with the college Learning Support Math program are then ready to take a college-level math course, saving them time and money while accelerating their path towards college graduation.

Statistics The study of statistics includes topics such as measures of variation, basic probability, binomial and normal distributions, and sampling techniques. Students will learn how to collect and describe data, as well as how to use the results to write summaries, form conclusions, and make decisions.

Honors Precalculus is a course designed for students who have completed Algebra II who wish to be challenged with strong mathematical content. The course includes the exploration of the key characteristics of functions, sequences and series, trigonometry, logarithms, and conics. Throughout the course, students will complete MYP program projects as well as become familiar with the I.B. Diploma Programme method of grading.

Dual Enrollment Math Courses through a local college are currently taught on our campus by a high school teacher. Students complete the course work online. Successful completion of each course leads to high school credit and 3 hours of college credit. Course fees are determined by the college. A dual enrollment grant is available to help with costs. Current course offerings are listed within this document.

Dual Enrollment Math 1130—College Algebra A study of functions and graphs with an emphasis on modeling and regression analysis. Functions included are linear, quadratic, cubic, exponential, and logarithmic. Prereq(s): ACT Math Subscore of 22 and an ACT reading subscore of 19.

Dual Enrollment Math 1530 – Introductory Statistics Sampling, data organization, variability and central tendency, probability, distributions and confidence intervals, hypothesis testing, inference and regression. Prereq(s): ACT Math Subscore of 22 and an ACT reading subscore of 19 or Learning Support Mathematics (SAILS).

Dual Enrollment Math 1710--Pre-Calculus I A course designed for students majoring in science related degrees and as a prerequisite for MATH1720 leading to MATH 1910. A study of equations and inequalities, functions and graphs, linear and quadratic functions, polynomial and rational functions, exponential and logarithmic functions and systems of equations. Prereq(s): ACT Math Subscore of 22 and an ACT reading subscore of 19.

Dual Enrollment Math 1720—Pre-Calculus II Trigonometric functions, identities, equations and graphs, inverse trigonometric functions, triangle applications, vectors, polar coordinates, complex numbers, conic sections, sequences and series, and the Binomial Theorem. Prereq(s): MATH 1710 with C or higher or ACT Math Subscore 25 and ACT reading subscore of 19.

Dual Enrollment Math 1910 – Calculus 1 Limits, derivatives, and integrals of algebraic, trigonometric, exponential and logarithmic functions, their graphs and applications. Currently an online course offered with a Chatt State instructor. Prereq: Math 1720 ACT math subscore of 26 and ACT reading subscore of 19.

IB DP Math Studies SL I is the beginning of a two-year journey for students who have completed Algebra I and Geometry and who may have completed Algebra II. In general, this course is for students who find mathematics challenging. During year one, the first semester covers Algebra II content while the second semester covers financial mathematics, currency conversions, statistics, and number theory. Math Studies is designed to help students to develop an appreciation for mathematics while building on their knowledge from prior courses.

IB DP Math Studies SL 2 Students will build on the Math Studies year one course while studying Geometry, trigonometry, the key characteristics of functions, and differential Calculus. While formulating a strong basis for college mathematics, the students will complete an Internal Assessment paper that affords students the opportunity to apply mathematics to something for which they have a passion. Prerequisite: IB DP Math Studies SL I

IB DP Math SL 1 – Students will study algebra, functions and equations, trigonometry, probability, and statistics. The course is designed for students who will use mathematical concepts in their career, such as business people, doctors, and some engineers. Prerequisite: Algebra II

IB DP Math SL 2 – Students will study vectors, calculus, and statistics. This course is designed for students who will use mathematical concepts in their career, such as business people, doctors, and some engineers. Students will be required to do a math exploration as part of the course. Prerequisite: IB DP Math SL Year 1

IB DP Math HL 1 – Students will study advanced calculus. The IB DP Math HL course contains calculus similar to an AP Calculus BC course. This course is designed for students who will use mathematics as the basis for their university study and careers. It is designed for future computer scientists and some types of engineers. Prerequisite: Honors Pre-Calculus in sophomore year or Pre-Calculus content online during summer after 10th grade via math department.

IB DP Math HL 2 – Students will study three dimensional geometry, vectors, statistics, and advanced calculus. HL students study the HL option Calculus which includes limit theorems, convergences of series, and differential equations. This course is designed for students who will use mathematics as the basis for their university study and careers. It is designed for future computer scientists and some types of engineers. Students will be required to do a math exploration as part of the course. Prerequisite: IB DP Math HL Year 1

5 points are added to the student's final semester average for IB/DP courses.
3 points are added to the student's final semester average for Honors courses.
4 points are added to the student's final semester average for Dual Enrollment courses.