MATHEMATICS

National and state reports from mathematics and education organizations strongly recommend that all students should take four years of mathematics in grades 9-12. Colleges and universities are requiring three or four years of high school level mathematics. **Students need at least 9 mathematics credits in order to graduate.** Vocational and technical schools require a mathematics background for many of their programs. In order to prepare for postsecondary studies, students benefit from a sequential plan of mathematical coursework that is appropriate for them. With this in mind the mathematics department offers courses that are sequential and differentiated by student abilities.

Students entering Eagan High School as 9th graders in September 2014, who are currently enrolled in a middle school in the district, will be enrolled in one of two levels based on the recommendation of the Mathematics Department. This recommendation includes input from the grade eight mathematics teacher, mathematics grades and standardized test scores. Students who will be in 10th, 11th, or 12th grade next year will enroll in courses based upon the student's mathematics teacher's recommendation and math achievement. To fully acquaint students with today's mathematics content and procedures, the mathematics department uses the latest technology in instruction and assessment.

All juniors will take the Minnesota Comprehensive Assessment (MCA) in mathematics in April.

Mathematics Department Sequences 2019-2020

Honors Track

9th: Honors Geometry

10th: Honors Algebra II and/or AP ® Stats

11th: Honors Pre-Calculus and/or AP Stats and/or AP Computer Science
12th: AP Calculus and/or AP Stats and/or AP Computer Science

College Prep Track

9th: Intermediate Algebra I
10th: Geometry
11th: Algebra II
12th: Pre-Calculus, Technical Math, AP Stats, CAPS, or AP Computer Science

COURSES FIRST OFFERED TO STUDENTS IN GRADE 9

0704 Honors Geometry A — Grades 9,10
0705 Honors Geometry B
0706 Honors Geometry C

An in-depth study of Euclidean geometry in which students will work individually and in cooperative learning groups using paper-folding, computers and calculators to make discoveries and formulate conjectures. The course develops a structured mathematical system employing both deductive and inductive reasoning. It includes plane, spatial, coordinate and transformational geometry. Algebraic methods are used to solve problems involving geometric principles. Students need a ruler, protractor, compass, graph paper and a graphing calculator. The EHS Mathematics Department recommends the TI-84. Note: This is a year-long course. Students should register for all three courses.

0713 Intermediate Algebra IA
0714 Intermediate Algebra IB
0715 Intermediate Algebra IC

Grades 9,10
Prerequisite: Intermediate Algebra I

Intermediate Algebra is a study beyond linear topics in Algebra. Topics include systems of equations, quadratic equations, polynomials, data and statistics, probability and simulation, transformations and connections to geometry. Continuation in this course is contingent upon earning a passing grade the previous trimester. A TI-84 graphing calculator is recommended. Note: This is a year-long course. Students should register for all three courses.

0716 Fast-paced Intermediate Algebra IA
0717 Fast-paced Intermediate Algebra IB
0718 Fast-paced Intermediate Algebra IC

Grade 9
Prerequisite: Teacher Recommendation

Fast-paced Algebra is a study beyond linear topics in Algebra. It is more in depth that Intermediate Algebra and moves at an accelerated pace. You must have a teacher recommendation to enroll in this course. Topics include systems of equations, quadratic equations, polynomials, data and statistics, probability and simulation, transformations and connections to geometry. Continuation in this course is contingent upon earning a passing grade the previous trimester. A TI-84 graphing calculator is recommended. Note: This is a year-long course. Students should register for all three courses.

COURSES FIRST OFFERED TO STUDENTS IN GRADE 10

0721 Geometry A
0722 Geometry B
0723 Geometry C

Grades 9,10
Prerequisite: Successful completion of Intermediate Algebra I

A study of Euclidean geometry in which students will work individually and in cooperative learning groups using manipulatives, computers and calculators to make discoveries and formulate conjectures. The course develops a structured mathematical system employing both deductive and inductive reasoning. It includes plane, spatial, coordinate and transformational geometry. Algebraic methods are used to solve problems involving geometric principles. Students need a ruler, protractor, compass, graph paper and a graphing calculator. The EHS Mathematics Department recommends the TI-84. Note: This is a year-long course. Students should register for all three courses.

0735 Honors Algebra II A
0736 Honors Algebra II B
0737 Honors Algebra II C

Grades 10,11,12
Prequisite: Successful completion of Honors Geo A, B, C

This course is for students who have passed a full year of Honors Geometry. Students in this course will continue to learn to describe the world around them with algebraic expressions, equations, graphs and statistics. Applications and calculators provide a context in the language of algebra. Topics studied in this course include linear, quadratic, exponential, logarithmic and trigonometric functions and matrices. A graphing calculator is required for this course. The EHS Mathematics Department recommends the TI-84. Note: This is a year-long course. Students should register for all three courses.

0751 Advanced Placement Statistics A
0752 Advanced Placement Statistics B
0753 Advanced Placement Statistics C

Grades 10,11,12
Prerequisite: Grade 10: current enrollment in Honors Algebra II

AP Statistics is very similar to an introductory statistics course in many colleges. In this year long course students will be introduced to the major concepts and tools for collecting, displaying, analyzing, and drawing conclusions from data. Computers and calculators will aid in exploring the data and displaying it, while the Internet will be utilized to discover existing sets of data and studies. Certain distributions of data will be examined and characteristics identified. A well-developed design for collecting data will be studied and implemented throughout the course. This class will prepare students for the optional Advanced Placement exam for possible college credit. A graphing calculator is required for the course. The EHS Mathematics Department recommends the TI-84. Note: This is a year-long course. Students should register for all three courses.

COURSES FIRST OFFERED TO STUDENTS IN GRADE 11

0750 ACT Prep — Grades 11,12
Prerequisite: Currently enrolled in Algebra 2 or above

This class is recommended for college-bound juniors and seniors planning to take the ACT exam. Almost all undergraduate colleges and universities require that prospective students take the ACT. Taking this course will prepare students for all of the question types found on the ACT. We will analyze each of the test question areas and give special consideration to math and verbal refreshers and techniques aimed at relieving test-taking anxiety. Topics include sentence completions and reading comprehension for the reading section, grammar and essay writing for the writing section, scientific concepts for the science section, and basic and advanced math concepts (including fractions, decimals, percentages, ratios, proportions) and algebraic and geometric concepts for the math sections.

0757 Algebra II Concepts A
0758 Algebra II Concepts B
0759 Algebra II Concepts C
Grades 11,12
Prerequisite: Intermediate Algebra I and Geometry

This course is for students who have had a full year of geometry. This course is designed for those students who need a slower pace. Students in this course will continue to learn to describe the world around them with algebraic expressions, equations, graphs, and statistics. Students may not enroll for this course if they have received credit for an Algebra II course. Some colleges and universities may not accept Algebra II Concepts in determining admission for students. College bound students are strongly urged to select a regular Algebra II course. The EHS Mathematics Department recommends the TI-84. Note: This is a year-long course. Students should register for all three courses.

0767 Algebra II A
0768 Algebra II B
0769 Algebra II C
Grades 11,12
Prerequisite: Succesful completion ofIntermediate Algebra I and Geometry

This course is for students who have had a full year of geometry. Students in this course will continue to learn to describe the world around them with algebraic expressions, equations, graphs and statistics. Applications and calculators provide a context in the language of algebra. Topics studied in this course include linear, quadratic, exponential, logarithmic and trigonometric functions and matrices. A graphing calculator is required for this course. The EHS Mathematics Department recommends the TI-84. This is a year-long course. Students should register for all three courses.

0773 Honors PreCalculus A
0774 Honors PreCalculus B
0775 Honors PreCalculus C
Grades 11,12
Prerequisite: Succesful completion of Honors Algebra A, B, C

Precalculus topics in this course include a review of elementary functions, advanced properties of functions, polar coordinates, complex numbers, trigonometry, vectors, limits, parametric equations, and an introduction to calculus. Discrete Algebra topics that are included are sequences, series, the Binomial Theorem, Pascal's Triangle and mathematical induction. A graphing calculator is required for this course. The EHS Mathematics Department recommends the TI-84. Note: This is a year-long course. Students should register for all three courses.

0776 PreCalculus A
0777 PreCalculus B
0778 PreCalculus C
Grades 11,12
Prerequisite: Successful completion of Algebra II

This course is for students who have passed Algebra II. Precalculus topics include a review of the elementary functions, advanced properties of functions, polar coordinates, and complex numbers, trigonometry, vectors, limits, parametric equations, and an introduction to calculus. Discrete Algebra topics that are included are sequences, series, the Binominal Theorem, Pascal's Triangle and mathematical induction. A graphing calculator is required for this course. The EHS Mathematics Department recommends the TI-84. Note: This is a year-long course. Students should register for all three courses. Students taking this course may take a CLEP® test in the spring for college credit.

0797 Advanced Placement: Computer Science A
0798 Advanced Placement: Computer Science B
0799 Advanced Placement: Computer Science C

Grades 11,12
Prerequisite: Algebra II, or Honors Algebra II

AP Computer Science is similar to an introductory computer programming course in many colleges. The course is taught with an emphasis on program design and the Java programming language. The primary topics include: basics of computer architecture; binary representations; use of variables; line-oriented input/output; assignment statements; conditional statements; looping constructs; arrays; methods and parameter use; using the Java Standard Library; object oriented constructs (instantiation, inheritance, interfaces); simple searching, simple sorting; basics of recursion. Students will spend the majority of their time designing, coding, and testing their own applications. Several student projects will be assigned throughout the school year. This course prepares the student for the Advanced Placement exam for possible college credit. This is a year-long course -- students should register for all three trimesters of the course.

Success in this course does not necessarily require getting high grades in previous math courses, but rather the ability to think abstractly and in an organized fashion. Having a strong personal work ethic is required for success in this class.

AP Computer Science counts as a math credit towards graduation at Eagan High School, but may not be accepted as a math credit by some colleges and universities.

COURSES FIRST OFFERED TO STUDENTS IN GRADE 12

0779 College Algebra, Probability & Statistics (CAPS) A
0780 College Algebra, Probability & Statistics (CAPS) B
0781 College Algebra, Probability & Statistics (CAPS) C

Grade 12
Prerequisite: Algebra II

A College Algebra with Trigonometry
B College Algebra with Trigonometry
C Probability/Statistics

College Algebra, Probability, and Statistics (CAPS) has been designed to meet the needs of SENIORS who have demonstrated an interest in continuing their mathematics study beyond Algebra II, but are not intending to pursue a post-secondary course of study with a math/science focus. The target group of students include those who demonstrate skills and abilities in mathematics that are greater than those needed for Tech Math but may be problematic for success in Pre-Calculus. Topics will include analyzing data, chance and probability, functions, and trigonometry.

A graphing calculator is required for this course. The EHS Mathematics Department recommends the TI-84. Note: This is a year-long course. Students should register for all three courses.

0770 Technical Math Applications A
0771 Technical Math Applications B
0772 Technical Math Applications C

Grade 12
Prerequisite: Algebra II or Algebra II Concepts

This class is designed for students who have some difficulty with mathematics. Topics are studied through hands on activities. All of the problems are related to real life situations. Tech Math is a combination of Algebra, Geometry and Algebra 2. It also covers topics such as Voting Methods, the Stock Market, interest rates and other "real life" math situations. Note: This is a year-long course. Students should register for all three courses.

0782 Advanced Placement AB: Calculus A
0783 Advanced Placement AB: Calculus B
0784 Advanced Placement AB: Calculus C

Grade 12
Prerequisite: Successful completion of Honors Precalculus

0791 Advanced Placement BC: Calculus A
0792 Advanced Placement BC: Calculus B
0793 Advanced Placement BC: Calculus C

Grade 12
Prerequisite: Successful completion of Honors Precalculus

The AP Program in mathematics includes two calculus courses. The two courses are designated as Calculus AB and Calculus BC. Both courses are full year courses, each with its own examination. Students pursuing careers in engineering and the physical sciences would benefit from these courses. They could begin their major curriculum earlier by meeting the calculus requirements by successfully passing the A.P. Exam. Students taking Calculus BC will receive a subscore grade for Calculus AB based on performance on the portion of the exam devoted to Calculus AB topics.

Both courses represent college-level mathematics. Students that pass the Calculus AB test may receive one college semester credit. Students that pass the Calculus BC test may receive two college semester credits.

0794 Multivariable Calculus A
0795 Multivariable Calculus B
0796 Multivariable Calculus C

Grade 12
Prerequisite: A.P. score of 3 or better on Calc BC
Successful completion of Advanced Placement Calculus BC class

This course will cover the same material as a college-level Multivariable Calculus course, including the same rigor, expectations, and special technological skills found in many 2nd and 3rd year college courses. Topics covered include a brief review of infinite series and parametric and polar coordinates, vector geometry and 3-dimensional graphing techniques, vector-valued functions, differentiation of several variables, multiple integration, line and surface integrals, and fundamental theorems of vector analysis. We will use graphing calculators extensively. The TI-84 is needed for this course. Note: This is a year-long course. Students should register for all three courses.