

MATHEMATICS

0713 <u>Intermediate Algebra A</u>	Grades 9, 10
0714 <u>Intermediate Algebra B</u>	Prerequisite: Successful completion of Algebra I
0715 <u>Intermediate Algebra C</u>	

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. Students who fail trimester one will be placed in an Algebra Recovery course.

A scientific calculator is required. This is a year-long course; students should register for all courses A, B, C

0721 <u>Geometry A</u>	Grades 9, 10
0722 <u>Geometry B</u>	Prerequisite: Successful completion of Intermediate Algebra
0723 <u>Geometry C</u>	

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 will use a ruler, protractor, compass and digital tools.

A scientific calculator is required. This is a year-long course; students should register for all courses A, B, C

0704 <u>Honors Geometry A</u>	Grades 9, 10
0705 <u>Honors Geometry B</u>	Prerequisite: Successful completion of 8 th Grade Accelerated
0706 <u>Honors Geometry C</u>	Intermediate Algebra or an “A” in 9 th Grade Intermediate Algebra with teacher recommendation.

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 will use a ruler, protractor, compass and digital tools. The Honors level course includes a more rigorous curriculum. Students are expected to understand a higher level of Algebra than on-level Geometry.

A scientific calculator is required. This is a year-long course; students should register for all courses A, B, C

0757 <u>Algebra 2 Concepts A</u>	Grades 11, 12
0758 <u>Algebra 2 Concepts B</u>	Prerequisite: Teacher Recommendation
0759 <u>Algebra 2 Concepts C</u>	

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 in this course if they have received a credit for Algebra 2.

A graphing calculator is required, with a TI-83 or TI-84 series calculator preferred. This is a year-long course; students should register for all courses A, B, C. Some Colleges and Universities may not accept Algebra 2 Concepts in determining admission for students. College bound students are strongly encouraged to select a regular Algebra 2 course.

MATHEMATICS COURSES

0767 Algebra 2 A
0768 Algebra 2 B
0769 Algebra 2 C

Grades 10, 11, 12
Prerequisite: Successful completion of Intermediate Algebra and Geometry

This second-year course in Algebra will emphasize reading, problem solving, real-world applications, technology, the study of functions and provide for integration of geometry topics. Functions to be investigated include: variations, linear relations, quadratic, higher polynomials, exponential, logarithmic, rational, and trigonometric. This course will also study discrete math using combinatorics, probability, and statistics. Algebra 2 is a “gateway” course that prepares students for advanced mathematics (Pre-Calculus or AP Statistics or AP Comp Sci). Thus, successful performance in this course, or equivalent, determined by a passing grade is required for graduation.

A graphing calculator is required, with a TI-83 or TI-84 series calculator preferred. This is a year-long course; students should register for all courses A, B, C

0735 Honors Algebra 2 A
0736 Honors Algebra 2 B
0737 Honors Algebra 2 C

Grades 9, 10, 11
Prerequisite: Successful completion of Honors Geometry or “A” grades in Intermediate Alg & Geometry with Teacher recommendation

This second-year course in Algebra will emphasize reading, problem solving, real-world applications, technology and provide for integration of geometry topics. Functions to be investigated include: variations, linear relations, quadratic, exponential, logarithmic, and trigonometric. Students will complete projects that demonstrate their understanding of these functions in real applications. This course will also study discrete math using matrices, probability, and statistics. Algebra 2 Is a “Gateway” course that prepares students for advanced mathematics and statistical offerings. Thus, successful performance in this course and mastery of its content are especially important and valuable. A strong background in Algebra 2 is a prerequisite for AP Pre-Calculus. The Honors level course includes a more rigorous curriculum. Students are expected to understand a higher level of Algebra than on-level Algebra 2.

A graphing calculator is required, with a TI-83 or TI-84 series calculator preferred. This is a year-long course; students should register for all courses A, B, C

0779 College Algebra Probability and Statistics A
0780 College Algebra Probability and Statistics B
0781 College Algebra Probability and Statistics C

Grade 12
Prerequisite: Successful completion of Algebra 2

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-2 and are not intending to pursue a post-secondary course of study with a math/science focus. The target group of students include those who will take a math or statistics class in college as a general or program requirement, but are not planning on having a major that requires Calculus. Topics will include analyzing data, chance and probability, functions and trigonometry.

Because of its built-in statistical functions, the TI-83 or TI-84 series graphing calculator is REQUIRED. This is a year-long course; students should register for all courses A, B, C

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

Grade 12
Prerequisite: Successful completion of Algebra 2 or Algebra 2 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.

A graphing calculator is required. Any of the TI-83 or TI-84 series is strongly recommended. This is a year-long course; students should register for all courses A, B, C

MATHEMATICS COURSES

0776	<u>Pre-Calculus A</u>	Grades 11, 12
0777	<u>Pre-Calculus B</u>	Prerequisite: Successful completion of Algebra 2
0778	<u>Pre-Calculus</u>	Teacher Recommendation

This course is for students who have successfully completed Algebra 2. Pre-Calculus 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 in Sequences and Series, the Binomial Theorem, Pascal's Triangle and Mathematical Induction.

A very strong background in Algebra 2 is required. A graphing calculator is required. Any of the TI-83 or TI-84 series is strongly recommended. This is a year-long course; students should register for all courses A, B, C

0773	<u>Advanced Placement Pre-Calculus A</u>	Grades: 10, 11, 12
0774	<u>Advanced Placement Pre-Calculus B</u>	Recommendation: Successful completion of Honors Algebra 2 or
0775	<u>Advanced Placement Pre-Calculus C</u>	"A" grades in Algebra 2 with teacher recommendation

This course is for students who have successfully completed Honors Algebra 2. Pre-Calculus 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 in Sequences and Series, the Binomial Theorem, Pascal's Triangle and Mathematical Induction. Mathematical rigor necessary for Calculus will be emphasized.

Students in this class may register for and take the AP exam in May. There is a fee for this exam. Students need a very strong background in Algebra 2. We will use the graphing calculator extensively; hence a graphing calculator is required. (TI-83 or TI-84 is strongly recommended). This is a year-long course; students should register for all courses A, B, C

Students who pass the AP Pre-Calculus exam may receive college credits.

0782	<u>Advanced Placement: Calculus AB-A</u>	Grades 11, 12
0783	<u>Advanced Placement: Calculus AB-B</u>	Prerequisite: Successful completion of AP Precalculus
0784	<u>Advanced Placement: Calculus AB-C</u>	

The major emphasis of this course is to prepare students to pass the AP Calculus AB Exam given in May. This course will consist of topics in differential calculus and integral calculus. Concepts will include limits, related rates, optimization, area under a curve, and volumes of solids of revolution. Applications to real problems as well as calculus of trigonometric and other transcendental functions will occur in both differential and integral calculus. We will use the graphing calculator extensively; hence a **graphing calculator is required. (TI-83 or TI-84 is strongly recommended). Students in this class may register for and take the AP exam in May. There is a fee for the AP Exam. This is a year-long course, so students must register for all courses A, B, C**

Students who pass the Calculus AB exam may receive college credits.

0791	<u>Advanced Placement Calculus BC-A</u>	Grades 11, 12
0792	<u>Advanced Placement Calculus BC-B</u>	Prerequisite: A or B grades in AP Precalculus
0793	<u>Advanced Placement Calculus BC-C</u>	or teacher recommendation

The major emphasis of this course is to prepare students to pass the AP Calculus BC exam given in May. Students are required to take the exam. The rigor and pace will be much more than that of Advanced Placement AB Calculus. The BC course includes all of the AB curriculum plus three additional chapters. Additional topics will include l'Hopital's Rule, Improper Integrals, Partial Fractions, Infinite Series, Taylor's Theorem, Parametric Functions, Polar Functions, and Vectors. Students pursuing careers in engineering and the physical sciences would benefit from selecting the BC course. We will use the graphing calculator extensively; hence a **graphing calculator is required. (TI-83 or TI-84 is strongly recommended). Students in this class may register for and take the AP exam in May. There is a fee for the AP Exam. This is a year-long course, so students must register for all courses A, B, C**

Students who pass the Calculus BC exam may receive college credits.

MATHEMATICS COURSES

0794 Multivariable Calculus A

Grade 11, 12

0795 Multivariable Calculus B

Prerequisite: Successful completion of Advanced Placement Calculus BC Class and AP Score of 3 or better

0796 Multivariable Calculus C

This course is designed for the gifted math student. It covers the same material as a college-level Multivariable Calculus class, 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. Students will also learn to use the mathematical software package Maple to aid in their understanding of the material and to complete assignments and projects. We will use graphing calculators extensively. The TI-83 or TI-84 series is strongly recommended. Students pursuing careers in engineering and the physical sciences would benefit from selecting this course.

**This is a year-long course. Students should register for all courses A, B, C
Students may earn college credit.**

0751 Advanced Placement Statistics A

Grades 11, 12

0752 Advanced Placement Statistics B

Recommendation: Successful completion of Algebra 2 or teacher recommendation

0753 Advanced Placement Statistics C

Advanced Placement Statistics is an advanced mathematics course for college bound students who are intending to pursue a major in the social sciences, business, psychology, or health sciences along with the technically-oriented math/science majors. Topics include descriptive and inferential statistics. Experiments and projects are a major part of the course. The course is presented at a sufficient level of rigor to prepare for the main goal: success on the Advanced Placement Exam in May.

Students in this class may register for and take the AP exam in May. There is a fee for this exam. Students need a very strong background in Algebra 2. (usually defined as B+ or better) We have also found that a strong background in writing contributes towards students' success in this class. Because of its built-in statistical functions, the TI-83 or TI-84 series graphing calculator is REQUIRED. This is a year-long course; students should register for all courses A, B, C

Students who pass the AP Statistics exam may receive college credits

0797 Advanced Placement: Computer Science AA

Grades 11, 12

0798 Advanced Placement: Computer Science AB

Prerequisite: Successful completion of Algebra 2 or Teacher Recommendation

0799 Advanced Placement: Computer Science AC

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. 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.

Students in this class may register for and take the AP exam in May. There is a fee for this exam. 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. This is a year-long course; students should register for all courses A, B, C

Students who pass the AP Computer Science exam may receive college credits.

0750 ACT Prep

Grades 11, 12

Recommendation: Currently enrolled in Algebra 2 or higher

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.