



# Mathematics/Statistics/ Computer Science Courses

National and state reports from mathematics and education organizations strongly recommend that all students take four years of mathematics in grades 9-12. Many colleges and universities are requiring three years and recommending four years of high school-level mathematics, along with experience in computer applications or programming. Vocational and technical schools also require a strong math background for many of their programs. In order to prepare for post-secondary studies, students can benefit from a well-chosen plan of mathematical coursework that is appropriate for them. With this in mind, the Mathematics Department offers courses that are sequential and appropriate to meet each student's plan for the future.

To fulfill graduation requirements, all students are required to complete twelve quarter courses (three years). Computer Science credits do not count toward the mathematics graduation requirement, but are recommended for students considering post secondary training. Incoming ninth graders are enrolled in a math course based on input from the eighth grade math teacher, previous grades in mathematics, standardized test scores, and student/parent choice.

## **Calculators:**

### **Algebra-1 and Geometry:**

A scientific calculator is needed for courses in Algebra-1 and Geometry. We recommend the TI-30Xa or TI-30X Iia (solar).

### **Algebra-2, CAPS, Pre Calculus, Calculus, and Statistics:**

A graphing calculator is necessary for courses Algebra-2, CAPS, Pre Calculus, Calculus, and Statistics. Texas Instruments makes several user friendly calculators. Because the TI-83 and TI-84 series calculators are used for classroom demonstrations and discussion, the Eastview Math Department strongly recommends these models to students. Due to lack of ease in use or missing applications, we do NOT recommend the TI-85 or TI-86. The TI-92 is not allowed on tests and college entrance exams and therefore is discouraged. The TI-89 is not allowed on the ACT Exam. Questions may be referred to the Math Department Coordinator.

Students who are interested in taking two math courses concurrently should consult with their math teacher. The preferred combinations for doubling up are (1) Geometry and Algebra-2 or (2) Pre calculus and calculus. Doubling up requires a very strong math aptitude, commitment to extra study outside of class, and teacher recommendation.

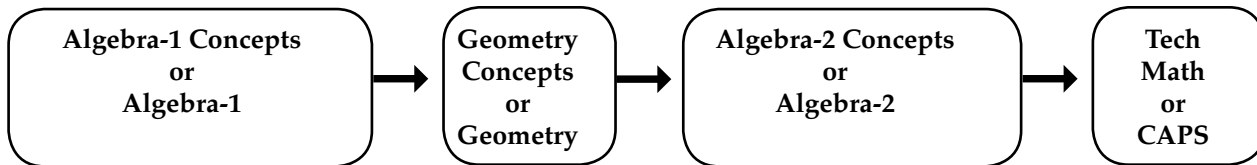
**It is very important that you register for the mathematics/statistics class that best fits your background, skills, scholarly habits and future plans. Changing to a different course partway through the school year can be a very difficult situation, and there is no guarantee that a change could happen. You are advised to register for the course that you are most likely to learn the most in and complete successfully, not just "try out". If you are uncertain about correct registration and placement, please see your counselor or current math teacher. Near the end of the school year, re-check your registration and make any necessary changes at that time.**

# MATHEMATICS COURSES

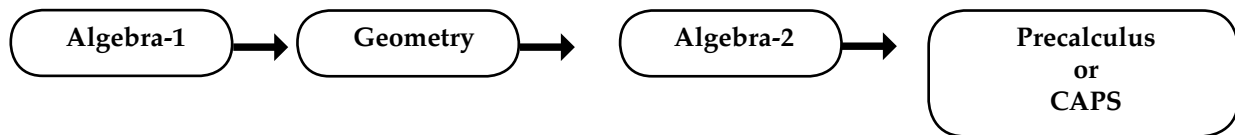
## LEVELS OF STUDY AT EASTVIEW HIGH SCHOOL

**NOTE:** Flow charts are the recommended path for the majority of students

**LEVEL 1:** Suggested for those students who have not completed a full-year of Algebra-1 and have experienced difficulty with math. A scientific calculator is required for classes Algebra-1 and Geometry; a graphing calculator is needed for Algebra-2 & above.



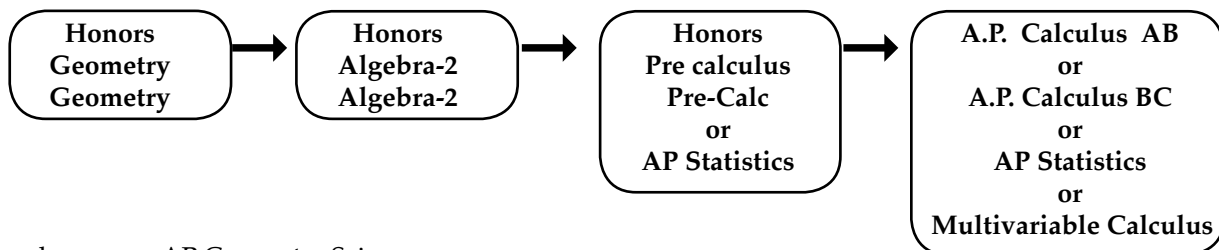
**LEVEL 2:** Suggested for those students who have not completed a full year of Algebra-1 and desire a standard high school curriculum necessary for entrance to most colleges, universities, and technical institutes. To be successful at this level, a student must have a solid math background along with good classroom, study, and homework skills. Courses at or above the Algebra-2 level require a graphing calculator. Due to the sequential nature of courses in mathematics, successful completion (generally indicated by a C- or better) in each class is suggested before progressing to the next class.



Additional courses: AP Computer Science, AP Statistics.

**NOTE:** Students who are successful in Geometry may move to Level 3 (below) and take Honors Algebra 2 upon recommendation of instructor. Students who are successful in Algebra 2 may move to Level 3 (below) and take Honors Pre Calculus upon recommendation of instructor.

**LEVEL 3:** This level is suggested for students who will have completed Algebra in eighth grade, wish a challenging mathematics curriculum, and/or are considering a career or major that requires a rigorous math preparation. These are college-preparatory courses. To be successful, students need a strong math background and excellent classroom, study, attendance, and homework habits. All courses except geometry require a graphing calculator.



Additional courses: AP Computer Science.

### Characteristics of a Student Well-Suited for Honors & Advanced Placement Math Courses

1. Works well independently. Seeks help only when necessary. Does not require detailed or repeated directions from teacher in order to proceed.
2. Is creative. Can think of things to try, or use original methods, when faced with a problem situation.
3. Readily applies learned principles to new situations. Can solve novel problems. Responds well to guided discovery.
4. Responds positively to challenging situations. Shows persistence in searching for solutions. Finds satisfaction in independently solving a problem rather than accepting another person's solution or help.
5. Likes to analyze, generalize, derive, prove, abstract; to investigate relationships and alternative solutions.
6. Has a strong intuitive sense for the subject matter. Sorts out key relationships quickly.
7. Shows a high degree of interest and motivation. Is intellectually curious and a critical thinker.
8. Has experienced high achievement in past courses without undue stress. Has not depended on rote learning or tutoring.
9. Shows above average ability in oral and written expression.

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## MATHEMATICS COURSES

### EASTVIEW HIGH SCHOOL MATHEMATICS COURSE DESCRIPTIONS

Students should register for all courses in the sequence.

#### Courses for Grades 9, 10, 11 and 12

0701	Algebra-1 Concepts A	Grades 9, 10
0702	Algebra-1 Concepts B	Prerequisite: Completion of Math-3 and
0703	Algebra-1 Concepts C	Instructor Permission
0704	Algebra-1 Concepts D	

This course is a one year class that will focus on the basic algebraic concepts necessary to succeed in geometry and Algebra-2. Topics covered will include: solving linear equations, graphing, proportions, Pythagorean applications, the distance formula, polynomials, and exponential applications. The pace of this course will be slower than that of Algebra-1. **A scientific calculator is required. Students should register for all courses A, B, C, D.**

0705	Algebra-1A	Grades 9, 10, 11, 12
0706	Algebra-1B	Prerequisite: Completion of Math-3
0707	Algebra-1C	
0708	Algebra-1D	

Algebra introduces the student to the language of mathematics. Applications, reading and technology will be used to present basic operations in algebra, linear sentences and systems, lines, exponents and powers, polynomials, and quadratic equations. This is a year-long course. **A scientific calculator is required. Students should register for all courses A, B, C, D.**

0709	Geometry A	Grades 9, 10, 11, 12
0710	Geometry B	Prerequisite: Successful completion
0711	Geometry C	of Algebra-1
0712	Geometry D	

This course in plane and solid geometry includes points, lines, planes, polygons, and circles. Topics are studied within the context of reflections, transformations and real-world applications. Proofs will be included in the course. Additional topics include congruence, measurement, formulas, coordinate geometry, similarity, logic, trigonometry and vectors. **A scientific calculator is required This is a year-long course. Students should register for all courses A, B, C, D.**

0713	Honors Geometry A	Grades 9, 10, 11, 12
0714	Honors Geometry B	Prerequisite: Successful completion
0715	Honors Geometry C	of 8th Grade Algebra-1 or
0716	Honors Geometry D	an "A" in Algebra-1 and teacher approval

This course in plane and solid geometry includes points, lines, planes, polygons, and circles. Topics are studied within the context of reflections, transformations and real-world applications. Proofs and projects will be included in the course. Additional topics include congruence, measurement, formulas, coordinate geometry, similarity, logic, trigonometry and vectors. **A scientific calculator is required. See "Characteristics of a Student Well-Suited for Honors Math Courses" above. This is a year-long course. Students should register for all courses A, B, C, D.**

0726	Geometry Concepts A	Grades 10, 11, 12
0727	Geometry Concepts B	Prerequisite: Successful completion of
0728	Geometry Concepts C	Algebra-1 or Algebra-1
0729	Geometry Concepts D	Concepts and Instructor Permission

This course in plane and solid geometry includes points, lines, planes, polygons, and circles, using a more concrete hands-on approach. These concepts are studied within the context of reflections, transformations and real-world applications. The study of transformations will continue and be applied to the congruence of triangles. Measurement formulas will be applied to two- and three-dimensional figures. Additional topics covered in this course include coordinate geometry, similarity, logic reasoning, and trigonometry. **A scientific calculator is required This is a year-long course. Students should register for all courses A, B, C, D.**

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## MATHEMATICS COURSES

0730	Algebra-2 Concepts A	Grades 10, 11, 12
0731	Algebra-2 Concepts B	Prerequisite: Successful completion of
0732	Algebra-2 Concepts C	a Geometry course and
0733	Algebra-2 Concepts D	Instructor Permission

This second year course in Algebra will emphasize statistical analysis, trigonometry, exponential and linear functions. Discrete math will also be included. Technology will be integrated throughout. A graphing calculator will be required. The TI-83 or TI-84 is recommended. **NOTE: Some colleges and universities may NOT accept Algebra-2 Concepts in determining admission for students. College bound students are strongly urged to select Algebra-2.**

0740	Algebra-2A	Grades 9, 10, 11, 12
0741	Algebra-2B	Prerequisite: Successful completion of a
0742	Algebra-2C	Geometry course sequence
0743	Algebra-2D	

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, exponential, logarithmic, and trigonometric. 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 (usually defined as B or better) is a prerequisite for AP Statistics and Pre Calculus. **This is a year-long course. Students should register for all courses A, B, C, D. A graphing calculator is required. Any of the TI-83 or TI-84 series is strongly recommended.**

0744	Honors Algebra-2A	Grades 9, 10, 11
0745	Honors Algebra-2B	Prerequisite: Successful completion of
0746	Honors Algebra-2C	Geometry or an
0747	Honors Algebra-2D	"A" in Geometry and teacher approval

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 (usually defined as B or better) is a prerequisite for AP Statistics and Pre Calculus. **See "Characteristics of a Student Well-Suited for Honors & Advanced Placement Math Courses" above. This is a year-long course. Students should register for all courses A, B, C, D. A graphing calculator is required. Any of the TI-83 or TI-84 series is strongly recommended.**

### Courses OFFERED TO STUDENTS IN Grades 11 and 12

0751	Technical Mathematics A	Grades 11, 12
0752	Technical Mathematics B	Prerequisite: Algebra 2 or
0753	Technical Mathematics C	Algebra-2 Concepts A
0754	Technical Mathematics D	

Technical Mathematics will begin by building estimation and problem solving skills. Units on logic and various voting methods will follow. The course will then review topics of number theory, algebra, and geometry. New topics of consumer mathematics, financial management, measurement, probability, statistics, and trigonometry will round out the course. Technical Mathematics is appropriate for students who experienced difficulty in Algebra-2. The Technical Mathematics A, B, C, D sequence is recognized as one year of an appropriate mathematics course by the National Collegiate Athletic Association (NCAA) Initial Eligibility Clearinghouse. **This is a year-long course. Students should register for all courses A, B, C, D.**

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## MATHEMATICS COURSES

0755	Pre-Calculus A	Grades 11, 12
0756	Pre-Calculus B	Prerequisite: Successful completion of Algebra-2
0757	Pre-Calculus C	
0758	Pre-Calculus D	

The Pre-Calculus course continues the study of functions and other pre-calculus topics including trigonometry, vectors, limits, and discrete mathematics. Reading mathematics, projects and technology applications are all included in this course. **A very strong background in Algebra-2 is required. This is a year-long course. Students should register for all courses A, B, C, D. A graphing calculator is required. Any of the TI-83 or TI-84 series is strongly recommended.**

0759	Honors Pre-Calculus A	Grades 11, 12
0760	Honors Pre-Calculus B	Prerequisite: Successful completion of Honors Algebra-2
0761	Honors Pre-Calculus C	“A” grades in Algebra-2 and
0762	Honors Pre-Calculus D	teacher approval

The Pre-Calculus course continues the study of functions, including parametrics and polars and other pre-calculus topics including trigonometry, analytical geometry, vectors, limits, and discrete mathematics. Reading mathematics, projects and technology applications are all included in this course. Continuation in this course sequence is contingent upon receiving a passing grade the previous quarter. Mathematical rigor necessary for Calculus will be emphasized. **See “Characteristics of a Student Well-Suited for Honors & Advanced Placement Math Courses” above. A very strong background in Algebra-2 is required. This is a year-long course. Students should register for all courses A, B, C, D. A graphing calculator is required. Any of the TI-83 or TI-84 series is strongly recommended.**

0763	Advanced Placement Statistics A	Grades 11, 12
0764	Advanced Placement Statistics B	Prerequisite: Honors Algebra-2 or Algebra-2
0765	Advanced Placement Statistics C	with teacher approval
0766	Advanced Placement Statistics D	

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 need a very strong background in Algebra-2.** (usually defined as B or better) **See “Characteristics of a Student Well-Suited for Honors & Advanced Placement Math Courses” above. This is a year-long course. Students should register for all courses A, B, C, D. Because of its built-in statistical functions, the TI-83 or TI-84 series graphing calculator is REQUIRED.**

### Courses for Grade 12

0776	College Algebra/ Probability/ Statistics A	Grade 12
0777	College Algebra/ Probability/ Statistics B	Prerequisite: Algebra-2 or Algebra-2 Concepts
0778	College Algebra/ Probability/ Statistics C	
0779	College Algebra/ Probability/ Statistics D	

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 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. **Students should register for all courses A, B, C, D. Because of its built-in statistical functions, the TI-83 or TI-84 series graphing calculator is REQUIRED.**

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## MATHEMATICS COURSES

0788	Advanced Placement: Calculus AB-A	Grade 12
0789	Advanced Placement: Calculus AB-B	Prerequisite: Successful completion of Honors
0790	Advanced Placement: Calculus AB-C	Precalculus or "A"grades in Precalculus
0791	Advanced Placement: Calculus AB-D	

The major emphasis of this course is to prepare students to pass the AP exam given in the spring. Students will be expected to take the exam. This course will consist of topics in analytical geometry, differential calculus, and integral calculus. Additional concepts will include limits, related rates, max./min. applications, and graphing. Area under a curve and volumes of solids of revolution will also be investigated. 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. **See "Characteristics of a Student Well-Suited for Honors & Advanced Placement Math Courses" above. This is a year-long course. Students should register for all courses A, B, C, D. A graphing calculator is required. Any of the TI-83 or TI-84 series is strongly recommended. The TI-89 may be used in this class and on the AP Exam.**

0792	Advanced Placement: Calculus BC-A	Grade 12
0793	Advanced Placement: Calculus BC-B	Prerequisite: Successful completion of Honors
0794	Advanced Placement: Calculus BC-C	Precalculus or "A"grades in Precalculus
0795	Advanced Placement: Calculus BC-D	Instructor's permission

The major emphasis of this course is to prepare students to pass the AP exam given in the spring. Students will be expected 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 3 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. **See "Characteristics of a Student Well-Suited for Honors & Advanced Placement Math Courses" above. Passing the AP Calculus BC Exam would earn a full year's college credit. Instructor's permission required. We will use the graphing calculator extensively. This is a year-long course. Students should register for all courses A, B, C, D. A graphing calculator is required. The TI-83 or TI-84 series is strongly recommended. The TI-89 may be used in this class and on the AP Exam.**

1565	Advanced Placement: Computer Science A	Grades 11, 12
1566	Advanced Placement: Computer Science B	Prerequisite: Algebra-2
1567	Advanced Placement: Computer Science C	or Honors Algebra-2
1568	Advanced Placement: Computer Science D	or Instructor Permission

This course is designed for college-bound students who are interested in learning to program computers. The course will be taught using the Java language. Major topics will include knowledge of computer systems, variables, expressions, input-output, conditionals, loops, object oriented programming, arrays, parameters, simple recursion, searching, sorting, and strings. Application projects will be assigned. This course will help prepare students for the advanced placement test in the computer language Java. This is a year-long course. Students should register for all courses A, B, C, D. **See "Characteristics of a Student Well-Suited for Honors Math Courses" above. NOTE: This course is an elective credit and does not qualify as one of the eight quarter courses in math required for graduation.**

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## MATHEMATICS COURSES

0796 Multivariable Calculus A  
0797 Multivariable Calculus B  
0798 Multivariable Calculus C  
0799 Multivariable Calculus D

**Grade: 12**

**Prerequisites:** Successful completion of  
Advanced Placement Calculus BC class  
and exam &/or instructor's permission

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. The TI-89 may be used in this class. 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, D.**