

MATHEMATICS COURSE DESCRIPTIONS

Colleges base student admission on a variety of factors, including the rigor of a student’s high school courses, GPA, ACT/SAT scores, participation in athletics & extracurricular activities, leadership & community service, admissions essay, and recommendations. ***The academic rigor of a student’s high school courses, as well as SAT scores and GPA, are generally the most important factors.***

The vast majority of high school graduates attend a college or university in their home state. Colorado’s colleges and universities (Colorado School of Mines, the University of Colorado system, the Colorado State University system, the University of Northern Colorado, Mesa State College, Fort Lewis College, Adams State College, Western State College and Metropolitan State College) **require the following minimum expectations:**

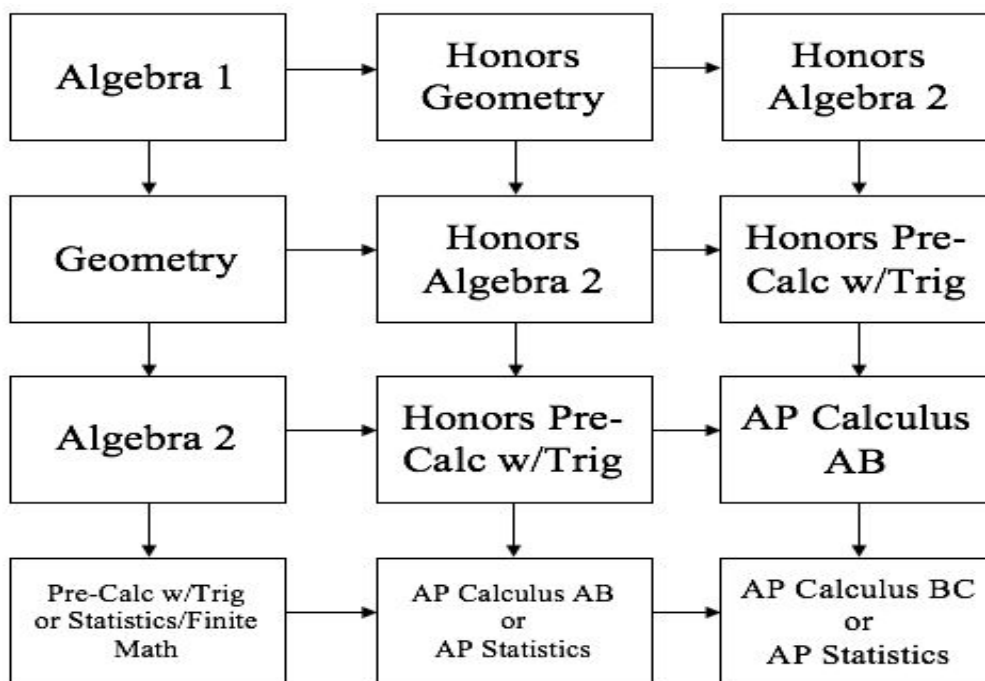
1. Four years of English - CP English 12 is required unless a student is enrolled in AP Language/AP Literature or FRCC English.
2. Four years of mathematics (at the level of Algebra I and higher).
3. Three years of natural science – two of which must be laboratory courses.
4. Three years of social studies – U.S. History and either World Geography or AP Human Geography are required.
5. Two years of academic electives.
6. One to three years of a world language (depending on the specific school).

RECOMMENDED COURSES FOR COLLEGE PREPARATION

Erie High School emphasizes college and career readiness for our students with strong academic classes and a well-rounded elective experience.

9TH GRADE	10TH GRADE	11TH GRADE	12TH GRADE
SVVSD requires 8 classes per semester	SVVSD requires 8 classes per semester	SVVSD minimum 6 classes per semester	SVVSD minimum 6 classes per semester
English 9 or 9 Honors	English 10, AP Seminar	English 11, AP Lang, AP Lit	AP Lang, AP Lit, English elective, FRCC English Comp
Algebra I or above	Math (student specific)	Math (student specific)	Math (student specific)
Biology, Biology Honors, or AP Environmental Science* (*By teacher approval only)	Chemistry, AP Biology, AP Environmental Science	Physics, Geology, Anatomy & Physiology, AP Chemistry, AP Physics, AP Biology, AP Environmental Science	Geology, Anatomy & Physiology, AP Chemistry, AP Biology, AP Chemistry, AP Physics, AP Environmental Science
World Studies or AP Human Geography	AP US History or AP US Government	US Govt, AP US History, AP Government, AP European History	US Govt, AP US History, AP Government, AP European History
Foreign Language	Foreign Language	Foreign Language	Foreign Language
Electives, Core PE and Health	Electives, PE	Electives	Electives
Study Hall (required all year)		FRCC college course(s)	FRCC college course(s)

MATH PROGRESSION MAP



Please note that students are placed in courses based on teacher recommendation. These paths are not the only options. For example, if a student has shown exemplary work in Algebra 1 it is possible that the student can then take Honors Geometry and continue with that path.

MA110A & 110B Algebra I (this is a year long class)

Grades 9-12 2 semesters/1.0 credit

Suggested Calculator: Scientific or Graphing Calculator (TI-83 or TI-84)

Estimated homework time of 30-45 minutes per class

This course focuses on four critical areas: (1) using units and relationships between quantities; (2) reasoning with equations and expressions; (3) analyzing and using linear, exponential, and quadratic functions; and (4) interpreting and displaying data using descriptive statistics.

MA115A & 115B Geometry (this is a year long class)

Grades 9-12 2 semesters/1.0 credit

Prerequisite: Algebra 1

Suggested Calculator: Scientific or Graphing Calculator (TI-83 or TI-84)

Estimated homework time of: 30-45 minutes per class

This course focuses on four critical areas: (1) exploring congruence, similarity, and right-triangle relationships; (2) developing proof using constructions and coordinate geometry; (3) using area and volume to model and solve problems; and (4) applying probability to explore events of chance.

MATHEMATICS COURSE DESCRIPTIONS

MA116A & 116B Honors Geometry (this is a year long class) Grades 9-12 2 semesters/1.0 credit

Prerequisite: Algebra 1 with Teacher Recommendation

Weighted credit for 9th and 10th graders only

Suggested Calculator: Scientific or Graphing Calculator (TI-83 or TI-84)

Estimated homework time of up to one hour per class.

This course focuses on four critical areas in greater depth: (1) exploring congruence, similarity, and right-triangle relationships; (2) developing proof using constructions and coordinate geometry; (3) using area and volume to model and solve problems; and (4) applying probability to explore events of chance. Students also have the opportunity to study advanced geometric constructions, proving advanced properties of triangles and quadrilaterals.

MA120A & 120B Algebra 2 (this is a year long class) Grades 10-12 2 semester/1.0 credit

Prerequisite: Algebra 1 and Geometry

Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of 30 minutes per class

This course focuses on the three critical areas: (1) analyzing and using polynomial, rational, exponential, logarithmic and trigonometric functions; (2) modeling sequences and series with recursive and explicit functions; and (3) making statistical inferences from data.

MA121A & 121B Honors Algebra 2 (this is a year long class) Grades 10-12 2 semesters/1.0 credit

Prerequisite: Algebra 1 and Honors Geometry or teacher recommendation

Weighted credit for 9th and 10th graders only.

Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of up to one hour per class

This course focuses on three critical areas in greater depth: (1) analyzing and using polynomial, rational, radical, exponential, logarithmic, and trigonometric functions; (2) modeling sequences and series with recursive and explicit functions; and (3) making statistical inferences from data. Students also have the opportunity to study matrices to solve multivariable systems of equations, the Fundamental Theorem of Algebra, the binomial theorem, rational and radical functions, properties of logarithms, and conic sections.

MA125 Statistics Grades 11-12 1 semester/.5 credit

Prerequisite: Algebra 1, Geometry, and Algebra 2

Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of up to one hour per class.

This course focuses on three critical areas: (1) conditional probability and the rules of probability; (2) using probability to make decisions; and (3) using descriptive statistics and data distributions.

MA133A & 133B Pre-calculus with Trig (this is a year long class) Grades 11-12 2 semesters/1.0 credit

Prerequisite: Algebra, Geometry and Algebra 2 with teacher recommendation

Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of 30 minutes per class

This course focuses on six critical areas: (1) the complex number system; (2) arithmetic with polynomials and rational expressions; (3) operations with functions; (4) conic sections; (5) trigonometric functions; and (6) applications of trigonometry.

MATHEMATICS COURSE DESCRIPTIONS

MA149A & 149B Honors Pre-calculus with Trig (this is a year long class) Grades 11-12 2 semesters/1.0 credit

Prerequisite: Algebra 1, Geometry/Honors Geometry, Algebra 2 with teacher recommendation or Honors Algebra

Weighted credit for 9th, 10th, and 11th graders only

Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of up to one hour per class

This course focuses on six critical areas in greater depth; (1) the complex number system; (2) arithmetic with polynomials and rational expressions; (3) operations with functions; (4) conic sections; (5) trigonometric functions; and (6) applications of trigonometry. Students also have the opportunity to study sequences and series, vectors, limits, and derivatives as an introduction to calculus

MA170 Finite Mathematics

Grades 11-12 1 semester/.5 credit

Prerequisite: Algebra 1, Geometry, and Algebra 2

Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of up to one hour per class.

This course focuses on three critical areas; (1) sequences and series (extension from Algebra 2); (2) operations with matrices and determinants; and (3) operations with vectors.

MA500A & 500B AP Calculus AB (this is a year long class)

Grades 11-12 2 semesters/1.0 credit

credit

Prerequisite: Algebra 1, Geometry/Honors Geometry, Algebra 2/Honors Algebra 2, Honors Pre-Calc/Tri. or Pre-Calc/Trig with teacher recommendation.

AP Fee Required. Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of one hour for every one hour of class time plus additional time for AP preparation

AP Calculus AB is designed for students intending to study mathematics, engineering, or the hard sciences in college. The course includes differentiation and integration of polynomials, rational, algebraic, trigonometric, logarithmic, and exponential functions, and applications. Students will be expected to complete all daily assignments and perform satisfactorily on examinations. Emphasis is on preparation for the AP Exam.

MA510A & 510B AP Calculus BC (this is a year long class)

Grades 11-12 2 semesters/1.0 credit

Prerequisite: Algebra 1, Geometry/Honors Geometry, Algebra 2/Honors Algebra 2, Honors Pre-Calc/Trig. Or Pre-Calc/Trig with teacher recommendation

AP Fee Required. Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of one hour for every one hour of class time plus additional time for AP preparation

AP Calculus BC is designed for students intending to study mathematics, engineering, or the hard sciences in college. The course includes all the topics of AP Calculus AB plus series (power, Taylor, Maclaurin), convergence testing, partial fractions, improper integrals, differentiation and integration of parametric and vector relations. Students will be expected to complete all daily assignments and perform satisfactorily on examinations. Emphasis is on preparation for the AP Exam.

MA520A & 520B AP Statistics (this is a year long class)

Grades 11- 12 2 semesters/1.0 credit

Prerequisite: Algebra 1, Geometry/Honors Geometry, Algebra 2/Honors Algebra 2.

AP Fee Required. Suggested Calculator: Graphing Calculator (TI-83 or TI-84)

Estimated homework time of one hour for every one hour of class time.

This course involves an in-depth study of statistics, and is designed to prepare students to take the Advanced Placement test in Statistics. Students will learn about exploratory analysis, experimental design, probability and statistical inference. Emphasis is on preparation for the AP exam.