

MATHEMATICS

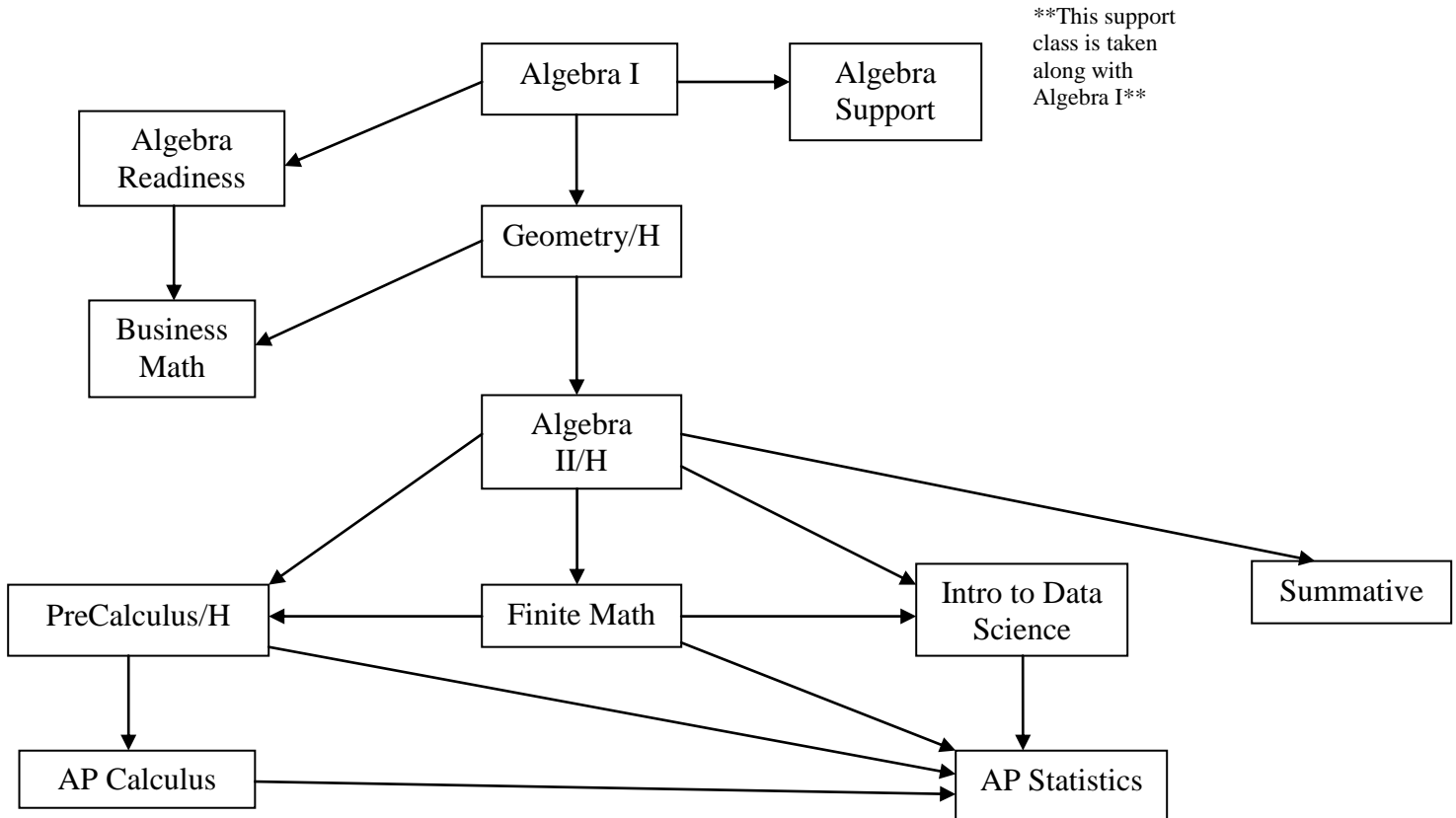
ALL INCOMING 9TH GRADERS MUST TAKE A MATH 'READINESS' PLACEMENT EXAM BEFORE BEING ADMITTED TO ANY HIGH SCHOOL MATH CLASS.

It is extremely important to consider proper placement in mathematics at the high school in order to ensure successful completion of the 3-year math requirement. All of the following will be taken into consideration when placing students in math classes: Diagnostic 'Readiness' assessment scores based on previous math class; Grades (C or better); Teacher recommendations.

RECOMMENDED SEQUENCE OF COURSES:

SEQUENCE	8 TH GRADE	9 TH GRADE	10 TH GRADE	11 TH GRADE	12 TH GRADE
Alternative #1 (Meets UC/CSU Requirements)	Algebra I	Geometry	Algebra II	PreCalculus or Intro to Data Science	AP Calculus or AP Statistics
Alternative #2 (Meets UC/CSU Requirements)	8 th grade Math	Algebra I	Geometry	Algebra II	Higher Math (Recommended)

High School Math Pathways:



ALGEBRA I / ALGEBRA I SDAIE*

(9,10,11,12)

One Year

Fulfills UC/CSU Requirements: YES – Subject Area – C

**SDAIE courses are designated for Limited English Proficiency (LEP) students.*

Course Description: Common Core Algebra is the first course in a five year sequence of college preparatory mathematics courses that continues through Calculus. The main ideas covered are: interpreting and building visual representations of functions, including linear, quadratic, and exponential functions; and creating, manipulating, and solving equations and inequalities, including systems of equations and inequalities. This course satisfies one of the college entrance requirements in mathematics.

ALGEBRA SUPPORT

(9)

One Year

Fulfills UC/CSU Requirements: NO

Course Description: This course is taught in conjunction with Algebra I/Algebra I SDAIE for students who need extra support in their algebra class. The course was developed in order to ensure a strong foundation in algebra before moving on in the mathematics sequence. Freshmen who opt to take the support class will postpone Biology until their sophomore year or high school. Completion of this course satisfies one year of the high school graduation mathematics requirement.

ALGEBRA IB / ALGEBRA IB SDAIE*

(10,11,12)

One Year

Fulfills UC/CSU Requirements: YES – Subject Area – C

SDAIE courses are designated for Limited English Proficiency (LEP) students.*Prerequisite:** Must have passed first semester of Algebra 1.

Course Description: This course covers the basics of the second semester of an algebra course stretched out over a year in order to ensure a strong foundational understanding of algebra before moving on in mathematics. The main ideas covered will be writing and solving equations/inequalities from words or diagrams, quadratic equations and modeling, and linear systems. Completion of this math course satisfies minimum state high school graduation requirements.

ALGEBRA READINESS

(10, 11, 12)

One Year

Fulfills UC/CSU Requirements: NO

Course Description: This course is designed for those who have struggled with their Algebra requirement. The curriculum is comprised of pre-algebra math skills to help students re-integrate themselves into the Algebra program.

GEOMETRY / GEOMETRY SDAIE*

(9,10,11,12)

One Year

Fulfills UC/CSU Requirements: YES – Subject Area – C

SDAIE courses are designated for Limited English Proficiency (LEP) students.*Prerequisite:** Must have a grade of “C” or better in all semesters of Algebra I or Algebra IB.**Recommended:** Demonstrate ‘readiness’ on a Geometry placement test.

Course Description: Common Core Geometry aims to formalize and extend the geometry that students have learned in previous courses. Key concepts addressed are: transformations (reflection, rotation, translation, dilation) and symmetry; properties of plane figures, proofs of geometric theorems; measurements of plane figures and 3-dimensional shapes; theorems about circles; tools for analyzing and measuring right triangles, general triangles, and complex shapes (such as the Pythagorean Theorem, trigonometric ratios, inverse Precalculus, and the Laws of Sines and Cosines); geometric construction (with compass and straightedge); and probability. This course satisfies one of the college entrance requirements in mathematics. A scientific calculator is required.

GEOMETRY HONORS

(9)

One Year

Fulfills UC/CSU Requirements: YES – Subject Area – C

Prerequisite: Must have an “A” in both semesters of Algebra I and show readiness for the level of rigor of this course through a Geometry placement test.

Course Description: This is an extended and enriched course in Geometry for college-bound students who have shown evidence of their superior ability in the Algebra class that precedes this course. This course will prepare students for the rigorous level of difficulty expected in Honors courses like Algebra 2 Honors, and Precalculus Honors, leading up to AP Stats and/or AP Calculus. A scientific calculator is required. A protractor and compass are strongly recommended.

ALGEBRA II/ALGEBRA II SDAIE

(9,10,11,12)

One Year

Fulfills UC/CSU Requirements: YES – Subject Area – C

SDAIE courses are designated for Limited English Proficiency (LEP) students.*Prerequisite:** Must have a grade of “C” or better in both semesters of Geometry.**Recommended:** Demonstrate ‘readiness’ on an Algebra II placement test

Course Description: Common Core Algebra 2 complements and expands the mathematical content and concepts of Common Core Algebra I and Geometry. Topics include: Trigonometry (unit circles, periodic modeling, and basic proofs of identities); function interpretation (graphing, parent functions, and analyzing both graphically and symbolically); polynomials and the complex number system (zeros, factors, imaginary roots); modeling and solving problems (arithmetic and geometric series, logarithms, and inverse functions), and probability and statistical analysis. This course prepares students for either Finite Math or Precalculus. A graphing calculator such as the TI-83+ or better is strongly recommended.

ALGEBRA II HONORS

(9, 10, 11, 12)

One Year

Fulfills UC/CSU Requirements: YES – Subject Area – C

Prerequisite: Must have a grade of “B” or better in both semesters of Geometry Honors or teacher recommendation, demonstrate ‘readiness’ on an Algebra II placement test.

Course Description: This course is the enriched second course in algebra. It presents and extends the concepts taught in Algebra II. It prepares students for Precalculus Honors. A graphing calculator such as the TI-83+ or better is strongly recommended.

FINITE MATH

(10, 11,12)

One Year

Fulfills UC/CSU Requirements: YES - Subject Area - C

Prerequisite: Must have a grade of “C” in both semesters of Algebra II.

Course Description: Finite math is an applied math course. We will use algebra to solve real world problems in business, economics, life sciences, and the social sciences. The course consists of units in the study of functions, financial math, matrices, probability, and statistics. A graphing calculator such as the TI-83+ or better is required.

PRECALCULUS

(10,11,12)

One Year

(Grade 9 by instructor approval only)

Fulfills UC/CSU Requirements: YES - Subject Area - C

Prerequisite: Must have a grade of “C” or better in both semesters of Algebra II with teacher recommendation.

Course Description: This course covers precalculus and a variety of subjects in pre-calculus over one year (2 semesters). It is a required course for calculus and will combine many of the trigonometric, geometric and algebraic techniques needed to prepare students for the study of calculus. A graphing calculator such as the TI-83+ or better is recommended.

PRECALCULUS – HONORS

(9, 10, 11, 12)

One Year

Fulfills UC/CSU Requirements: YES - Subject Area - C

Recommended: Must have a grade of “B” or better in both semesters of Algebra II Honors with/or teacher recommendation.

Course Description: This is an intensive yearlong 11th/12th grade preparatory course for students intending to take college level or AP Calculus. This course is aligned with Common Core standards, including trigonometric, exponential and logarithmic functions, limits, and an introduction to calculus. A graphing calculator such as the TI-83+ or better is recommended.

INTRODUCTION TO DATA SCIENCE

(11,12)

One Year

Fulfills UC/CSU Requirements: YES - Subject Area - C

Prerequisite: Must have completed Algebra II.

This course is an introduction to the practice of data science: reasoning about the world with data. It will emphasize the use of statistics and computation as tools for creative work, as a means of telling stories with data. Its content will prepare students to “read” and think critically about existing data stories. ‘R’, the statistical programming language used by academics and industry, will be used to bring data to life. Through ‘R’, students will learn to compute with data to develop graphical and numerical summaries to both communicate findings and to generate further exploration. This is a project and inquiry-based class.

AP STATISTICS

(11, 12)

One Year

Fulfills UC/CSU Requirements: YES - Subject Area - C

Recommended: A grade of “B” or better in both semesters of Precalculus or Finite Math.

Summer Assignments: Students are responsible for obtaining and completing any assigned work. Students failing to turn in the Summer Assignment at registration will be dropped from the course.

Course Description: This Advanced Placement course is a technical and in-depth extension of probability and statistics. In particular, mastery of academic content for advancement placement gives students the background to succeed on the advanced placement exam. A graphing calculator, approved by the College Board, is required. There are summer assignments for this course. In May, students in this class are expected to take the AP examination.

AP CALCULUS AB

(11,12)

One Year

Fulfills UC/CSU Requirements: YES - Subject Area - C

Recommended: A grade of “B” or better in both semesters of Precalculus Honors.

Summer Assignments: Students are responsible for obtaining and completing any assigned work. Students failing to turn in the Summer Assignment at registration will be dropped from the course.

Course Description: This Advanced Placement course consists of a full academic year of work in single variable calculus comparable to one semester (2 quarters) of a first year calculus course in colleges and universities. Major areas of study include Differential Calculus (Functions, Limits, Continuity, Rates of Change, Derivatives, Differentiability, Applied Derivatives, Related Rates, Optimization, Implicit Differentiation and EVT, IVT, and MVT) and Integral Calculus (Summation, Approximation Techniques, Area and Volume, Applied Integrals, and Theorems). A graphing calculator, approved by the College Board, is required. There are summer assignments for this course. In May, students in this class are expected to take the AP examination. *Students may opt to study on their own for the AP Calculus BC exam.

BUSINESS MATH

(11, 12)

One Year

Fulfills UC/CSU Requirements: NO

Prerequisite: Restricted to 11th and 12th graders who earned Algebra I credit in high school but need the course to satisfy a third year of high school math requirement for graduation. This is not a UC approved math class.

Course Description: This is an applied mathematics course constructed around typical situations that the ordinary adult would encounter in life. Topics include pay checks and deductions, keeping budgets, shopping and reading catalogs and ads, apartment rental leases, taxes, and buying on credit. Within this course pupils will have many opportunities to apply their knowledge of arithmetic.

SUMMATIVE MATH

(11, 12)

One Year

Prerequisite: Completed Algebra II with a D or better.

Fulfills UC/CSU Requirements: NO

Course Description: This course is designed for college-bound juniors and seniors who need to either fill in gaps in their math knowledge, or wish to revisit and retain their skills in Algebra I, Geometry and Algebra II in order to be prepared for college placement tests.