

Course Descriptions

Mathematics

COURSE	AHS	CHS	CAMS	JHS	LHS	MHS	PHS	RHSA	RHS	WHS	LBSA
Accelerated Geometry		•		•	•	•	•			•	
Access Algebra 1-2											
Access Geometry 1-2											
Algebra AB/CD	•	•		•	•	•	•		•	•	•
Algebra 1-2	•	•		•	•	•	•	•		•	•
CAHSEE Mathematics PLATO		•		•			•	•		•	
CAHSEE Math Prep		•		•	•	•	•	•		•	•
Calculus A/B (AP)	•	•	•	•	•	•	•	•		•	
Calculus B/C (AP)		•	•				•				
Career Mathematics	•	•		•	•	•	•	•	•	•	•
Career Mathematics PLATO	•										•
Finite Math		•	•			•	•			•	
Functions, Statistics & Trigonometry			•		•					•	
Geometry AB/CD				•						•	
Geometry 1-2	•	•		•	•	•	•	•	•	•	•
Mathematical Studies IB SL				•							
Interactive Mathematics Program 1-2											
Interactive Mathematics Program 3-4			•								
Interactive Mathematics Program 5-6			•								
Interactive Mathematics Program 7-8			•								
Intermediate Algebra 1-2	•	•		•	•	•	•	•	•	•	•
Intermediate Algebra Accelerated		•		•		•	•				
Intermediate Algebra/Trigonometry Acc			•				•				
Math Modeling 1			•								
Precalculus			•		•	•	•	•			
Precalculus (Honors)			•			•	•			•	
Precalculus with Trigonometry	•	•	•	•						•	
Statistics (AP)		•	•	•			•			•	
Statistics and Probability			•		•						
Trigonometry			•								
Algebra ABCD		•		•		•		•		•	
Geometry ABCD				•							

• Course offered

AHS Avalon High School
 CHS Cabrillo High School
 CAMS California Academy of Math & Science
 JHS David Starr Jordan High School
 LHS Lakewood High School
 LBSA Long Beach School for Adults

MHS Robert A. Millikan High School
 PHS Polytechnic High School
 RHSA Renaissance High School for the Arts
 RHS Will J. Reid High School
 WHS Woodrow Wilson Classical High School

Each math course offered will satisfy one of the two years of mathematics required for graduation, unless otherwise noted.

****These courses do not meet the NCAA or UC Requirements.**

Accelerated Geometry 1-2 ————— **3023**

Length of Course: 2 Semesters
Grade Level Options: 9, 10
Prerequisite: "B" or better in Algebra 1-2 or equivalent course

This course uses a basic philosophy of a guided discovery approach with an emphasis on theory and requires the higher level thinking skills such as analysis. The content and application of the course goes beyond the basic geometry course to develop knowledge of the fundamental structure of mathematics and logical thinking.

This course will meet the "c" entrance requirement for the University of California and California State University systems.

NCAA Approved

Access Algebra 1-2 ————— **3015**

Length of Course: 2 Semesters
Grade Level Options: 9, 10, 11, 12
Prerequisite: "C" or better in Math 8 or Pre-Algebra

The course content for this class is the same as Algebra 1-2. The delivery has been changed to provide additional visual aides, manipulatives and multimedia opportunities. Access courses include tutoring and parent meetings.

This course will meet the "c" entrance requirement for the University of California and California State University systems.

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Access Geometry 1-2 ————— **3044**

Length of Course: 2 Semesters
Grade Level Options: 9, 10, 11, 12
Prerequisite: "C" or better in Algebra 1-2.

The course content for this class is the same as Geometry 1-2. The delivery has been changed to provide additional visual aids, manipulatives and multimedia opportunities. Tutoring and parent meetings are part of the curriculum.

This course will meet the "c" entrance requirement for the University of California and California State University systems.

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Algebra AB/CD ————— **3007/3010**
Algebra AB/CD SDAIE ————— **3016/3020**
Algebra AB/CD SDAIE/PLS ————— **3062/3074**
(Algebra AB** ————— **5741)**
(Algebra CD** ————— **5742)**

Length of Course: 4 Semesters
Grade Level Options: 9, 10, 11, 12
Prerequisite: None

The course content of this four semester class is the same as Algebra 1-2. The delivery system has been changed to provide extra time for students to meet the course objectives. Students must pass all four semesters to meet the algebra requirement.

This two year course will meet one year of the "c" entrance requirement for the University of California and California State University systems upon completion of Algebra CD with a "C" or better.

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The entire two year sequence of Algebra ABCD satisfies two years of the mathematics graduation requirement.

Algebra 1-2 ————— **3004**
Algebra 1-2 SDAIE ————— **3011**
Algebra 1-2 SDAIE/PLS ————— **3054**
Algebra ABCD (Two periods) ————— **3058**

Length of Course: 2 Semesters
Grade Level Options: 9, 10, 11, 12
Prerequisite: "C" or better in Pre-Algebra

This course is an introduction to the language and applications of algebra and development of the real number system. It covers variable and mathematical sentences, equations, problem solving, inequalities, polynomials, special products and factoring, graphs, functions, quadratic equations, statistics and probability. An emphasis on modeling algebra concepts used in real world applications is used in the course.

This course is required for graduation.

This course will meet the "c" entrance requirement for the University of California and California State University systems.

NCAA Approved

Calculus A/B (AP) ————— **3073**

Length of Course: 2 Semesters
Grade Level Options: 11, 12
Prerequisite: "C" or better in Pre Calculus 1-2, or Pre Calculus/Trigonometry

This course consists of a full year of work in calculus and related topics comparable to courses in colleges and universities. The course includes the study of elementary functions and introductory calculus, placing primary emphasis on an intuitive understanding of the concepts of differential and integral calculus and on experience with its basic techniques and applications.

*Students who pass the AP exam have the opportunity to earn credit or advanced standing at **most** of the nation's colleges and universities.*

This course will meet the "c" or "g" entrance requirement for the University of California and California State University systems.

NCAA Approved

Calculus B/C (AP) 3075

Length of Course: 2 Semesters
Grade Level Options: 11, 12
Prerequisite: Calculus AP or equivalent

This course is intended for students who have a thorough knowledge of analytic geometry and elementary functions in addition to college preparatory algebra, geometry and trigonometry. Considerably more extensive than Calculus A/B, it is an intensive full year course in the calculus of functions of a single variable and includes topics such as infinite series.

Students who pass the AP exam have the opportunity to earn credit or advanced standing at most of the nation's colleges and universities.

This course will meet the "c" or "g" entrance requirement for the University of California and California State University

NCAA Approved

Career Mathematics 3002

Length of Course: 2 Semesters
Grade Level Options: 10, 11, 12
Prerequisite: None

This course is designed to help students develop appropriate consumer and career mathematical skills. Course content will cover such topics as review of basic operations, ratio, percent, equations, measurements, and many consumer topics. It will also include test-taking strategies.

This course will meet the math graduation requirement

Finite Math 3150

Length of Course: 2 semesters
Grade Level Options: 11-12
Prerequisite: "C" or better in Intermediate Algebra

This course is a one year program in advanced mathematics. It is comparable to the Finite Mathematics courses taught at the college level. The course is designed for students as a senior level mathematics course. It is recommended for students who plan to pursue a college major that does not require calculus and the higher levels of mathematics.

This course will meet the "c" or "g" entrance requirement for the University of California and California State University Systems

NCAA Approved

Functions, Statistics and Trigonometry 3069

Length of Course: 2 Semesters
Grade Level Options: 10, 11, 12
Prerequisite: A grade of "C" or better in Intermediate Algebra

In this course, students learn to use graphing calculators and computers. Functions, statistics and trigonometry are integrated and reality oriented. Reading and problem solving are emphasized. Concepts covered include inequality, distance with coordinates, infinity, rate of change, sequence, function, limit, maximum-minimum, and sum-

mation notation which are all concepts in calculus.

This course will meet the "c" or "g" entrance requirement for the University of California and California State University systems.

NCAA Approved

Geometry AB/CD 3038/3042

Geometry AB/CD SDAIE 3176/3177

Length of Course: 4 Semesters
Grade Level Options: 9, 10, 11, 12
Prerequisite: "C" or better in Algebra 1-2 or Algebra CD

The course content for this class is the same as Geometry 1-2. The delivery system has been changed to provide extra time for students to meet course objectives. Students must fulfill all four semesters to meet university entrance requirements.

This two year course will meet one year of the "c" entrance requirement for the University of California and California State University Systems.

NCAA Approved

The entire two year sequence of Geometry ABCD satisfies two years of the high school mathematics graduation requirement.

Geometry 1-2 3035

Geometry 1-2 SDAIE 3036

Geometry 1-2 SDAIE/PLS 3032

Geometry ABCD 3167

(Geometry 1-2 SDC 5335)**

Length of Course: 2 Semesters
Grade Level Options: 9, 10, 11, 12
Prerequisite: "C" or better in Algebra 1-2 or Algebra CD

This course studies lines, planes, space, angles, curves, and associated figures. Basic ideas introduced through concepts of sets of points. Extensions to three dimensions included. Coordinate geometry is introduced.

This course will meet the "c" entrance requirement for the University of California and California State University Systems.

NCAA Approved

Mathematical Studies IB SL 3078

Length of Course: 2 semesters
Grade Level Options: 11-12
Prerequisite: Intermediate Algebra or Pre-Calculus/Trig with a "C" or better

International Baccalaureate (IB) Mathematical Studies is a course of study which concentrates on using mathematics in contexts related as far as possible to other curriculum subjects, to common general world occurrences or to topics that relate to home or work situations. This course has a unique feature, a project, which is an individual piece of research and writing undertaken by the student during the one year course, guided and supervised by the teacher. It provides the opportunity for a student to pursue a mathematical investigation of a subject, hobby, or interest of his/her choice using skills learned before and during the IB Mathematical Studies course. The topics of

this course include those such as probability, statistics and functions which have very practical uses and can be studied in more depth, if and when the need arises.

This course will meet the "c" or "g" entrance requirement for the University of California and California State University systems.

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Interactive Mathematics Program 1-2 _____ **3152**

Length of Course: 2 semesters
Grade Level Options: 9

Interactive Math Program 1-2 is the first year of a four-year integrated math. Topics are drawn from algebra, (including use of variables, ratios and proportions, graphing, solving equations and systems of equations), geometry, (including angles, similarity; right triangle trigonometry), probability and statistics, (including calculating probabilities, expected value, planning and carrying out experiments, normal curves, simulations) and logic (including developing logical arguments, counter-examples, developing algorithms.) Generally, topics taught in a given year are reviewed and extended through the curriculum of subsequent years.

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Interactive Mathematics Program 3-4 _____ **3153**

Length of Course: 2 semesters
Grade Level Options: 9, 10

Interactive Mathematics Program 3-4 is the second year of a four-year integrated math program. The curriculum was developed to embody the vision of the NCTM Standards. The course uses a problem-centered approach to explore secondary school mathematics. Topics are drawn from algebra, geometry, statistics, probability, discrete math, and trigonometry. Generally, topics taught in a given year are reviewed and extended through the curriculum of subsequent years.

This course will meet the "c" entrance requirement for the University of California and California State University Systems

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Interactive Mathematics Program 5-6 _____ **3154**

Length of Course: 2 semesters
Grade Level Options: 10, 11

Interactive Mathematics Program 5-6 is the third year of a four-year integrated math program. The curriculum was developed to embody the vision of the NCTM Standards. The course uses a problem-centered approach to explore secondary school mathematics. Topics are drawn from algebra, geometry, statistics, probability, discrete math, pre-calculus, and trigonometry. Generally, topics taught in a given year are reviewed and extended through the curriculum of subsequent years.

This course will meet the "c" entrance requirement for the University

of California and California State University Systems

NCAA Approved

Interactive Mathematics Program 7-8 _____ **3155**

Length of Course: 2 semesters
Grade Level Options: 11, 12

Interactive Mathematics 7-8 is the fourth year of a four-year integrated math program that satisfies the a-g requirements of the University of California. The curriculum was developed to embody the vision of the NCTM Standards. The course uses a problem-centered approach to explore secondary school mathematics. Topics are drawn from algebra, geometry, statistics, probability, discrete math, precalculus, and trigonometry. Generally, topics taught in a given year include those being reviewed and extended from previous years as well as new topics.

This course will meet the "c" entrance requirement for the University of California and California State University Systems

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Intermediate Algebra 1-2 _____ **3045** **Intermediate Algebra 1-2 Accelerated** _____ **3047** **Intermediate Algebra SDAIE** _____ **3049** **Intermediate Algebra SDAIE/PLS** _____ **3052**

Length of Course: 2 Semesters
Grade Level Options: 9, 10, 11, 12
Prerequisite: "C" or better in Algebra 1-2 and Geometry 1-2

Reviews elementary algebra with increased emphasis on math models from real world applications. Language and symbolism are advanced to meet the needs of mathematical ideas and concepts. The content includes such topics as relations and functions, quadratic equations, theory of equations, matrices, transformations, logarithms, polynomials, polynomial equations, sequences, and series.

This course will meet the "c" entrance requirement for the University of California and California State University Systems.

NCAA Approved

Intermediate Algebra/Trig Accelerated _____ **3051**

Length of Course: 2 Semesters
Grade Level Options: 10-12
Prerequisite: "C" or better in Algebra 1-2 and Geometry 1-2

This course intends to replace a traditional 3 semester sequence of two semesters of Algebra II and one semester of Trigonometry with a two semester course covering the same traditional material. The course reviews elementary algebra with increased emphasis on the properties of number systems, functions, structure, and proof. Language and symbolism are advanced to meet the needs of new mathematical ideas and concepts. The content includes such topics as relations and functions, quadratic equations, theory of equation, logarithms, and trigonometry.

This course will meet the "c" or "g" entrance requirement for the University of California and California State University systems.

NCAA Approved

Mathematical Modeling ————— 7182

Length of Course: 2 semesters

Grade Level Options: 9-11

This course is the first of a three-year math modeling sequence. Students will learn to build, test, refine, and present models that describe real-world situations by building upon the skills and concepts taught in an Algebra 1 course. Students will learn to use specially designed computer programs and graphing calculator activities.

Precalculus ————— 3057 Precalculus Honors ————— 3053

Length of Course: 2 Semesters

Grade Level Options: 9-12 (Precalculus) 11-12 (Honors)

Prerequisite: "C" or better in Int. Algebra; Honor: "B" or better in Intermediate Algebra

The course reviews and unifies mathematical experience and acts as a transition from secondary to higher mathematics. Topics include analytic geometry, circular and special functions, theory of equations, matrices, the derivative and the integral. The Honors section of this course expands the depth and complexity of the content and requires students to complete a comprehensive final exam.

This course will meet the "c" or "g" entrance requirement for University of California and California State University State.

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Precalculus with Trigonometry — 3055

Length of Course: 2 Semesters

Grade Level Options: 11-12

Prerequisite: "C" or better in Int. Algebra or Int. Algebra and Trigonometry 1-2

This course reviews and unifies mathematical experiences and acts as a transition from secondary to higher mathematics. Topics include analytic geometry, circular and special functions, theory of equations, matrices, the derivative, and trigonometry.

This course will meet the "c" or "g" entrance requirement for the University of California and California State University Systems.

NCAA Approved

Statistics (AP) ————— 3071

Length of Course: 2 Semesters

Grade Level Options: 11, 12

Prerequisite: "C" or better in Intermediate Algebra

In this course, students will analyze data in four frameworks: descriptive patterns, both one-and two-variable; planning for reliable data production; anticipating patterns by probability principles; and applying to a wider world through inferential methods. This course is the

equivalent of a college introductory statistics course.

Students who pass the AP exam have the opportunity to earn credit or advanced standing at **most** of the nation's colleges and universities.

This course will meet the "c" or "g" entrance requirement for the University of California and California State University systems.

NCAA Approved

Statistics and Probability ————— 3070

Length of Course: 2 Semesters

Grade Level Options: 11, 12

Prerequisite: "C" or better in Intermediate Algebra

This course introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students are exposed to four broad conceptual themes: Exploring Data, Planning a Study, Anticipating Patterns in Advance and Statistical Inference.

This course will meet the "c" or "g" entrance requirement for University of California and California State University Systems.

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