

Mathematics

Dublin Unified School District Math Pathway Options

Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11 (Recommended 3rd Yr Math)	Grade 12 (Recommended 4th Yr Math)
Course 1	Course 2	Course 3	Algebra I	Geometry	Algebra II Adv Algebra II Financial Applications	Precalculus AP Precalculus Statistics AP Statistics Algebra II Adv Algebra II
Compacted Course 1/2	Course 3	Algebra I	Geometry	Algebra II Adv Algebra II Financial Applications	Statistics AP Statistics Precalculus AP Precalculus	Calculus AP Calculus AB Statistics AP Statistics
Compacted Course 1/2	Integrated Math I	Integrated Math II	Algebra II Adv Algebra II	Precalculus AP Precalculus Statistics AP Statistics Financial Applications	Calculus AP Calculus AB Precalculus Statistics AP Statistics	AP Calculus AB AP Calculus BC AP Statistics Calculus PreCalculus

Math Acceleration

Enrollment in the next level of mathematics requires successful completion of the current math course. There is no Credit by Exam to move to the next mathematics level. Courses must be taken sequentially unless otherwise noted. Students who desire to accelerate their mathematics course of study after completing 8th grade can do so in one of two ways:

1) Dual Enrollment

Students may accelerate their math pathway by taking two math courses simultaneously. Dual Enrollment options are Algebra I and Geometry, Geometry, and Advanced Algebra II, AP Statistics and PreCalculus, or AP Statistics and AP Calculus AB or BC

2) Alternative Credit Programs

Students may take up to 20 credits of mathematics (and no more than 40 credits in all subject areas combined) outside of DUSD to fulfill the DUSD graduation requirements. We do not recommend that students use an alternative credit program to complete Algebra I or Algebra II. High school math teachers have found that students taking courses through the alternative credit program have the most success if they enroll in a Geometry summer course. Counselors must acknowledge students' requests to accelerate through an alternative credit program. No credit will be given for courses taken without prior approval. Please contact a counselor or visit your high school's Counseling Department website for more information regarding alternative credit programs.

Mathematics Courses

Algebra I

Course Number:	797060
Grade Level:	9-11
Length:	1-year
Essential Skills:	None
Graduation:	Fulfills one year of math requirement.
College Prep:	Fulfills CSU/UC math requirement with grade of "C" or better.

This course is a State of California graduation requirement. Topics covered include graphing and writing linear equations and inequalities, systems of equations and inequalities, exponential expressions, operations with polynomials and radicals, quadratic equations, and graphing functions, including exponential, cubic, and absolute value functions. Students must pass both semesters of this course to meet the state high school graduation requirements and move on to Geometry.

Work outside of class: 30 - 45 minutes per day, 5 days per week, plus additional time for test preparation.

Geometry

Course Number:	797100
Grade Level:	9 - 12
Length:	1-year
Essential Skills:	Successful completion of Algebra 1
Graduation:	Fulfills one of three math requirements
College Prep:	Fulfills CSU/UC math requirement with "C" or better.

Understanding and applying geometry theorems and definitions is expected. All California Standards for Geometry are included in the curriculum. Students will learn the basics of geometry and its language, reasoning skills and methods of proof, shapes of two and three dimensions and their properties and size measurements, similarity, geometric probability, and transformations.

Work outside of class: 30-45 minutes per day, plus additional time for test preparation.

Algebra II

Course Number:	797081
Grade Level:	9-12
Length:	1-year
Essential Skills:	Successful completion of Algebra 1 and Geometry
Graduation:	Fulfills one year of math requirement.
College Prep:	Fulfills CSU/UC math requirement with a grade of “C” or better.

This course teaches the California standards for Algebra II. Topics studied include solving equations, graphing of parent functions, probability, trigonometric functions, logarithmic functions and exponential, along with other algebraic concepts.

Work outside of class: 30-45 minutes per day, plus additional time for test preparation.

Advanced Algebra II

Course Number:	797086
Grade Level:	9-12
Length:	1-year
Essential Skills:	Mastery of Algebra 1 and Geometry
Graduation:	Fulfills one year of math requirement.
College Prep:	Fulfills CSU/UC math requirement with a “C” or better. This is not a weighted course.

This accelerated and rigorous course is designed for students interested in studying more advanced mathematics. This course goes into greater depth and application of concepts than Algebra II. Topics of study include equations, inequalities, functions, transformations of functions, systems of complex numbers, polynomials, inverses, radical functions, rational functions, exponential and logarithmic functions, conic sections, and nonlinear systems, sequences and series, linear regression, statistics, data analysis, and probability (as time permits). Graphing and applications of these topics are included throughout the course.

Work outside of class: 1 hour per day, 5 days per week. In addition, students should plan to spend about 1 hour per week studying the concepts.

Financial Applications

Course Number:	797087
Grade Level:	10-12
Length:	1-year
Essential Skills:	Successful completion of Algebra 1 and Geometry
Graduation:	Fulfills one year of math requirement
College Prep:	Fulfills CSU/UC math requirement with a grade of “C” or better

This course is intended for juniors and seniors who have completed Algebra 1. Understanding and managing personal finances is key to one’s future financial success. This year-long course presents essential knowledge and skills to make informed decisions about real-world financial issues. Students will learn how choices influence occupational options and future earning potential. Students will also learn to apply decision-making skills to evaluate career choices and set personal goals. The course content is designed to help the learner make wise spending, saving, and credit decisions and to make effective use of income to achieve personal financial success. Topics include budgeting, saving, investing, retirement, credit, navigating financial pitfalls, taxes, and insurance.

Work outside of class: 20-30 minutes a day with additional time spent on projects, reviewing for quizzes and exams, and outside research.

Precalculus

Course Number:	797175
Grade Level:	9 - 12
Length:	1-year
Essential Skills:	Successful completion of Algebra 2 or Advanced Algebra 2
Graduation:	Fulfills one year of math requirement.
College Prep:	Fulfills CSU/UC math requirement with a "C" or better.

Students will study advanced functions and trigonometry, including polynomial and rational functions, exponential and logarithmic functions, vectors, probability, statistics, and an introduction to limits. Students need to have a strong understanding of Algebra 2 to be successful in Precalculus.

Work outside of class: 30-45 a day, plus additional time spent reviewing for quizzes and exams.

AP Precalculus

Course Number:	797174
Grade Level:	9-12
Course Length:	Full Year
Essential Skills:	Mastery of Algebra 2 (Advanced Algebra 2 recommended)
College Prep:	Fulfills CSU/UC Math 'C' requirement with a "C" or better

AP Precalculus is a detailed and comprehensive study of advanced functions and trigonometry, including polynomial, rational, exponential, logarithmic, polar, and parametric functions, vectors, and matrices. AP Precalculus is intended for motivated students who wish to pursue advanced studies in STEM. Class time is spent on collaborative learning activities that apply the skills covered in the lectures and provide a chance to ensure their conceptual understanding is developed. By actively participating in various hands-on exercises, projects, and discussions, students will not only grasp the fundamental principles but also learn how to effectively apply and expand upon them in real-world scenarios. Additional information can be found in the AP Precalculus Framework published by the College Board.

Work outside of class: 60-90 minutes per day, 3 times a week. In addition, students should spend at least one hour per week studying/mastering the concepts from recent lessons.

Calculus

Course Number:	797253
Grade Level:	11,12
Length:	1-year
Essential Skills:	Successful completion of PreCalculus or AP PreCalculus
Graduation:	Fulfills one year of math requirement
College prep:	Fulfills CSU/UC math requirement with a grade of "C" or better

Although this course is not an Advanced Placement course, it covers the same topics that the AP Calculus AB course covers. Students who are not prepared for the rigor of AP Calculus but have excellent algebra skills meet the requirements of this course. Students will study the basic calculus concepts of a first-semester college Calculus course. These topics will include derivatives and derivative rules, related rates, optimization, integration, and volumes of solids. Since the course is not AP, the pace of this Calculus course will be slower, and this should allow students the opportunity to be successful in this introductory course. Specific algebra skills that are critical to success in this class include factoring, solving systems of equations, graphing rational and polynomial functions, graphical analysis of complex functions, and composition of functions. Geometry topics (area and volume formulas) and trigonometric identities are also used on a regular basis.

Work outside of class: 30-45 minutes a day, plus additional time spent on projects and reviewing for quizzes and exams.

AP Calculus AB

Course Number:	797251
Grade Level:	10-12
Length:	1-year
Essential Skills:	Mastery of Advanced Algebra 2 and Precalculus or AP Precalculus topics
Graduation:	Fulfills one year of math requirement.
College Prep:	Fulfills CSU/UC math requirement with a grade of “C” or better. This is a weighted course.

Students learn the basic Calculus concepts presented in AB. This course covers the topics of the AB exam and will prepare students for the more rigorous second level of Calculus. Topics of study include but are not limited to analysis of graphs, limits, continuity, derivatives, and their applications, definite and indefinite integrals and their applications, and the Fundamental Theorem of Calculus. This course meets the Advanced Placement curriculum requirements. In this class, students explore and understand Calculus concepts graphically, numerically, analytically, and verbally. The goal of this course is to give students a deeper and more thorough understanding of mathematics based on Calculus. The goal of this course is to better prepare students for the rigorous mathematics courses of college. Students will take the AP Calculus AB test at the end of the year and may earn college credit.

Work outside of class: 60 minutes a day

AP Calculus BC

Course Number:	797252
Grade Level:	12
Length:	1-year
Essential Skills:	Students should have successfully completed AP Calculus AB. In particular, students should understand the properties of linear, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric, and piecewise-defined functions, as well as sequences, series, vectors, parametric equations, and polar equations. Students should know how to graph these functions and solve equations involving them and should also be familiar with algebraic transformations, combinations, compositions, and inverses for general functions.
Graduation:	Fulfills one year of math requirement.
College Prep:	Fulfills CSU/UC math requirement; a grade of C or higher is weighted.

This is a continuation course of Calculus AB. Students will review the basic Calculus concepts presented in AB at a condensed and intensified level and then learn additional concepts such as the Calculus involving parametric, polar, and vector functions; power, Taylor, and Maclaurin series; and analysis of the different series. This course covers the topics on the BC exam and will prepare students for the third level of Calculus offered at a university. This is an extremely rigorous course meeting the Advanced Placement curriculum requirements. Students continue to explore and understand Calculus concepts graphically, numerically, analytically, and verbally. The goal of this course is to continue to give students a deeper and more thorough understanding of mathematics based on Calculus. The goal of this course is to better prepare students for the rigorous mathematics courses of college. The students will take the AP Calculus BC test at the end of the year and may earn college credit.

Work outside of class: 60 minutes a day

Statistics

Course Number:	797256
Grade Level:	11-12
Length:	1-year
Essential Skills:	Successful completion of Algebra 2 or Advanced Algebra 2
Graduation:	Fulfills one year of math requirement.
College Prep:	Fulfills CSU/UC math requirement with a “C” or better.

This course is designed for college-bound juniors and seniors who have successfully completed Algebra 2. Students will study methods to collect and describe data in words and graphs, apply probability laws, study distributions, and apply statistical tests to make inferences. This course is intended to explain the uses of statistics and its role in processing information contained in reports, scientific journals, political coverage, and other sources.

Work outside of class: 20-30 minutes per day, 3 days per week, plus additional time for test preparation and projects.

AP Statistics

Course Number:	797255
Grade Level:	10-12
Length:	1-year
Essential Skills:	Successful completion of Algebra 2 (Advanced Algebra 2 recommended)
Graduation:	Fulfills one year of math requirement.
College Prep:	Fulfills CSU/UC math requirement; grade of C or higher is weighted.

This course is designed for college-bound students who have completed Algebra 2 (Advanced Algebra 2 recommended). AP Statistics is designed to prepare students for the AP Exam in May. The AP Syllabus directs the course curriculum. Students are required to use their TI 84 (83) (Plus) calculator. This analysis course requires students to produce, describe, interpret data, use probability, make inferences about the data, and write about the results. Strong study habits, math ability, and writing skills are necessary for success. The goal of this course is to give students a deeper and more thorough understanding of mathematics based on Statistics. This course should better prepare students for the rigorous mathematics courses of college. Students will take the AP Statistics exam at the end of the year and may earn college credit.

Work outside of class: 60-90 minutes daily, plus additional test preparation time.