



El Camino College
COURSE OUTLINE OF RECORD – Official

Subject:	AHSD
Course Number:	517
Descriptive Title:	High School Integrated Math 2
Division:	Library, Academic Support, and Noncredit
Department:	Adult High School Diploma
Course Disciplines:	Adult High School Diploma
Catalog Description:	This noncredit high school level course develops students' understanding of algebra, geometry, and statistics through connected mathematical concepts and real-world applications. Topics include triangles, quadrilaterals, similarity, trigonometry, circles, surface area, and volume. Algebraic concepts include polynomials, functions, quadratic equations, sequences, and series. Students also explore probability and data analysis. This course supports progress toward completion of a high school diploma or equivalent. From 1 to 10 high school credits may be earned in 15-hour modules. Note: This course is open entry/open exit.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	.83 to 8.33
Hours Laboratory (per week):	0
Outside Study Hours:	1.66 to 16.66
Total Course Hours:	15 to 150
Course Units:	0
Grading Method:	Pass/No Pass/SP
Credit Status:	Noncredit
Transfer CSU:	No
Effective Date:	
Transfer UC:	No
Effective Date:	
General Education ECC:	
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	

Term:	
Other:	
Cal-GETC:	
Term:	
Other:	
Student Learning Outcomes:	Upon successful completion of the course, students will be able to: 1. solve algebraic problems. 2. apply geometric and trigonometric concepts to analyze and solve problems. 3. analyze functions and probability models by interpreting graphs.
Course Objectives:	1. Prove triangles similar and examine similarity in right triangles. 2. Define trigonometric ratios and solve problems involving right triangles. 3. Find arc lengths and areas of sectors of circles. 4. Calculate the surface area and volume for prisms, cylinders, pyramids, and cones. 5. Apply the properties of exponents to rational exponents and radicals. 6. Add, subtract, multiply, and factor polynomials. 7. Graph and explore quadratic functions. 8. Solve quadratic equations by factoring, completing the square, and the quadratic formula. 9. Simplify expressions and solve equations using complex numbers. 10. Compute probabilities of compound, independent, dependent, and conditional events. 11. Apply independence and conditional probability to interpret data. 12. Graph exponential, radical, and piecewise functions. 13. Calculate the sum of arithmetic, geometric, and infinite geometric series.
Major Topics:	I. Similarity in Triangles (lecture) A. Ratios and proportions B. Properties of similar polygons C. Proving triangles similar (AA, SAS, SSS) D. Similarity in right triangles E. Applications of triangle similarity II. Trigonometry of Right Triangles (lecture) A. Definition of sine, cosine, and tangent B. Trigonometric ratios in right triangles C. Solving right triangles D. Applications of trigonometry in real-world contexts III. Circles (lecture) A. Arc length B. Areas of sectors C. Applications involving circles IV. Surface Area and Volume (lecture) A. Surface area and volume of prisms B. Surface area and volume of cylinders C. Surface area and volume of pyramids D. Surface area and volume of cones E. Problem-solving with three-dimensional figures V. Exponents, Radicals, and Rational Exponents (lecture) A. Properties of exponents B. Rational exponents C. Radical expressions D. Simplifying and rewriting radical expressions

	VI. Polynomial Operations (lecture) A. Adding and subtracting polynomials B. Multiplying polynomials C. Factoring polynomial expressions D. Applications of polynomial operations VII. Quadratic Functions (lecture) A. Graphing quadratic functions B. Vertex form and standard form C. Transformations of quadratic graphs D. Interpreting quadratic models VIII. Solving Quadratic Equations (lecture) A. Solving by factoring B. Solving by completing the square C. Solving using the quadratic formula D. Applications of quadratic equations IX. Complex Numbers (lecture) A. Definition of imaginary and complex numbers B. Simplifying expressions with complex numbers C. Solving equations involving complex numbers X. Probability (lecture) A. Basic probability concepts B. Compound events C. Independent and dependent events D. Conditional probability E. Applications of probability XI. Functions and Their Graphs (lecture) A. Exponential functions B. Radical functions C. Piecewise functions D. Interpreting and analyzing function graphs XII. Sequences and Series (lecture) A. Arithmetic sequences and series B. Geometric sequences and series C. Infinite geometric series D. Applications of sequences and series
Total Lecture Hours:	15 to 150
Total Laboratory Hours:	0
Total Hours:	15 to 150
A.1. Primary Methods of Evaluation (Part 1 - CCN courses only):	
Primary Method of Evaluation:	2) Problem solving demonstrations (computational or non-computational)
Typical Assignment Using Primary Method of Evaluation:	Instructions: - Review the definitions of sine, cosine, and tangent. - Solve the following problems: - A ladder leaning against a wall forms a 65° angle with the ground. The ladder is 20 feet long. How high up the wall does the ladder reach?

	○ A tree casts a shadow 18 feet long when the angle of elevation of the sun is 40°. Estimate the height of the tree. 3. Draw diagrams for each problem and label all known and unknown values. 4. Show all steps used to solve each problem. 5. Write a short explanation describing how trigonometric ratios help solve real-world measurement problems. Submission Requirements: • Diagrams • Step-by-step solutions • Written explanation (1–2 paragraphs)
Critical Thinking Assignment 1:	Instructions: A bag contains: • 5 red marbles • 3 blue marbles • 2 green marbles 1. What is the probability of randomly selecting a red marble? 2. If two marbles are selected without replacement, what is the probability that both are blue? 3. What is the probability that the first marble is green and the second is red? 4. Create a tree diagram showing all possible outcomes when two marbles are selected without replacement. 5. Write a brief explanation describing the difference between independent and dependent events.
Critical Thinking Assignment 2:	Instructions: 1. Graph the quadratic function: $f(x) = x^2 - 6x + 5$ 2. Identify the following characteristics of the graph: • Vertex • Axis of symmetry • x-intercepts • y-intercept 3. Rewrite the equation in vertex form by completing the square. 4. Solve the equation: $x^2 - 6x + 5 = 0$ Use the following methods: • Factoring • Quadratic Formula 5. Write a short explanation (1–2 paragraphs) describing how graphs of quadratic functions can model real-world situations such as projectile motion or objects being thrown into the air. Submission Requirements: • Graph of the function • All work shown for solving the equation • Written explanation
Other Evaluation Methods:	Homework Problems, Objective Exam, Quizzes
If Other:	
Instructional Methods:	Demonstration, Discussion, Group Activities, Lecture
If other:	
Work Outside of Class:	Answer questions, Problem solving activity, Skill practice, Study
If Other:	

Up-To-Date Representative Texts:	Ron Larson and Laurie Boswell. <i>Big Ideas Math: Integrated Mathematics II</i> . Big Ideas Learning, 2016. (Disciplined Standard)
Alternative Texts:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite	
Category	
Requisite course:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill(s). if applicable	
Requisite course:	
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Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). if applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Matthew Kline
Date:	03/11/2026
Original Board Approval Date:	05/20/2026
Effective Term:	FA 2026