



El Camino College
COURSE OUTLINE OF RECORD – Official

Course Acronym:	AHSD
Course Number:	514
Descriptive Title:	High School Introduction to Geometry
Division:	Adult High School Diploma
Department:	Adult High School Diploma
Course Disciplines:	Adult High School Diploma
Catalog Description:	This non-credit high school level course provides students with an overview of the elements of geometry and the properties of those elements. Students learn to use properties in proofs to develop logical reasoning. The course integrates basic algebra into geometry and builds skills for upper-level math. Successful completion of this course contributes to progress toward a high school diploma or equivalent. From 1-10 high school credits can be earned in 15-hour modules. Note: This course is open entry/open exit.
Prerequisite:	AHSD 513 or placement based on the math assessment process
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 completion of this course, students will be able to: 1. classify elements of geometry, including points, lines, planes, angles, triangles and other polygons, circles and polyhedra in two- and three-dimensional space. 2. prove theorems using properties of geometric objects and constructions. 3. apply properties of geometric objects to solve real-world problems.
Course Objectives:	1. Define angles, triangles, quadrilaterals, and other polygons using geometric characteristics and properties, such as parallelism, similarity, and congruence. 2. Plot and transform geometric objects on Cartesian coordinate plane. 3. Calculate distance, mid-point, perimeter, area, and volume of geometric objects (including circles, sectors, spheres, cones, and other three-dimensional figures) using algebraic formulae and geometric properties. 4. Measure and construct two-dimensional geometric objects (including parallel and intersecting lines) using a protractor and a compass, as well as Geometers' Sketchpad. 5. Connect reasoning in geometry and algebra by use of properties. 6. Use deductive reasoning through two-column proofs and paragraph proofs which order relevant information in appropriate sequence. 7. Observe data, recognize patterns, and demonstrate inductive reasoning by conjecturing properties and theorems. 8. Solve word problems through use of geometric properties. 9. Solve real-world measurement problems outdoors through use of geometric properties.
Major Topics:	I. Arithmetic review (lecture) A. Basic calculation operations, order of operations, number lines B. Fractions, decimals, percents, ratios and proportions C. Powers and roots D. Problem solving II. Algebra review (lecture) A. Variables, expressions, equations B. Transformation of equations

	III. Introduction to geometry (lecture) A. Basic objects - points, lines, planes B. Angles - classification, angle pairs C. Lines D. Basic polygons E. Constructions, use of compass and protractor F. Use of Geometers' Sketchpad G. Logic and proof, including indirect proof IV. Triangles (lecture) A. Classification B. Similarity and congruence C. Altitudes, medians, bisectors, and centers of triangles D. Pythagorean Theorem E. Area and perimeter F. Triangle theorems and proofs V. Quadrilaterals (lecture) A. Classification B. Area and perimeter C. Quadrilateral theorems and proofs VI. Polygons and polyhedra (lecture) A. Classification B. Model building VII. Coordinate geometry and transformations (lecture) A. Coordinate plane B. Plotting points and lines C. Distance and mid-point D. Transformations
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):	
A.2. Primary Method of Evaluation (Part 2 - all courses; choose one):	2) Problem solving demonstrations (computational or non-computational)
Typical Assignment Using Primary Method of Evaluation:	Write a 500-word report on the history of pi, using correct grammar, spelling, and punctuation. Include a bibliography citing at least three references, of which no more than two may be from the Internet.
Critical Thinking Assignment 1:	Demonstrate translation, reflection, and rotation of a scalene triangle using Geometers Sketchpad. Print out each step and write in sentence how you proceeded from each step to the next, explaining the transformations.
Critical Thinking Assignment 2:	Construct three three-dimensional polyhedra out of construction paper (using patterns provided in class). Make a mobile out of your three polyhedra and we will hang the mobiles in the classroom. Find examples of the use of tetrahedra, pyramids, cubes, and spheres in art and/or architecture. Write a one-page paper about those examples which you found and include pictures and/or diagrams. What conclusions can you draw from your mini investigation?
Other Evaluation Methods:	
Instructional Methods:	
If other:	
Work Outside of Class:	Answer questions, Problem solving activity, Required reading, Skill practice, Study
If Other:	
Up-To-Date Representative Texts:	Baratto, Stefan et al. <i>Basic Mathematical Skills with Geometry</i> . McGraw Hill, 2014. (Discipline Standard) <i>The Geometer's Sketchpad, Exploring Geometry</i> . McGraw Hill, 2012. (Discipline Standard)
Alternative Texts:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite:	Prerequisite
Category:	sequential
Requisite course(s): List both prerequisites and corequisites in this box.	AHSD 513
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:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	Solve exponential growth and decay word problems. AHSD 513 - Solve exponential growth and decay word problems. Define functions with tables and graphs. AHSD 513 - Define functions with tables and graphs. Compare three methods of solving simultaneous equations (graphic, substitution, and elimination) and determine which method is more appropriate in different situations. AHSD 513 - Compare three methods of solving simultaneous equations (graphic, substitution, and elimination) and determine which method is more appropriate in different situations. Demonstrate irrational numbers using the Pythagorean Theorem. AHSD 513 - Demonstrate irrational numbers using the Pythagorean Theorem.
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:	03/16/2024
Original Board Approval Date:	01/13/2025
Last Reviewed and/or Revised by:	Matt Kline
Date:	03/11/2026
Last Board Approval Date:	05/20/2026
Effective Term:	FA 2026