

MATH 130C : Geometry

Introduces the student to college-level Euclidean geometry, including definitions, postulates, and theorems. Topics include reasoning and proofs; parallel and perpendicular lines; triangles and congruence; quadrilaterals; circles; transformations; area; and analytic geometry. The course also introduces concepts in non-Euclidean geometry. The student will complete a required project. A graphing calculator, compass, protractor, and dynamic geometry software are required.

Credits 4

Lab/Practicum/Clinical Hours 0

Lecture Hours 4

Prerequisite Courses

MATH 120C

MATH 124C

MATH 124XC

Prerequisites

MATH 120C; MATH 124C; MATH 124XC; or by permission of the department head of Mathematics/Physics/Science

Learning Outcomes

- Use axioms, definitions, and given theorems to prove properties of geometry.
- Prove two triangles congruent under varying sets of hypotheses (the traditional SAS, SSS, ASA, AAS proofs).
- Use the inequality theorems for triangles to establish relationships between measures of sides and angles of triangles.
- Explain the difference between Euclidean and Non-Euclidean Geometries as related to the Parallel Postulate.
- Use symmetry and transformations to solve problems.
- Use logical reasoning in geometric proofs.
- Write analytic proofs using properties from algebra and congruence.
- Apply the properties of right triangles, including Pythagorean Theorem and similar right triangles, and trigonometry.
- Apply the properties of circles to solve problems.
- Use geometric formulas to compute the area of plane figures.