

# MATH130C : 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

## **Prerequisites**

*Students are required to pass prerequisite courses with a grade of C or higher. Exceptions apply; please consult your department chair.*

- High school Algebra II with a grade of C or higher (or equivalent) or MATH 092 with a grade of C or higher or by recommendation of the Math/Physics Department.

MATH120C

MATH124C

MATH124XC

## **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.