

## Florida Department of Education

## COURSE DESCRIPTION - GRADES 9-12, ADULT

**Subject Area:** Mathematics

**Course Number:** 1206310

**Course Title:** Geometry

**Credit:** 1.0

**Will meet graduation requirement for Mathematics**

**Basic Assumptions for Mathematics Education:**

- All students have access to calculators and computers.
- Classroom activities are student-centered, emphasizing concrete experiences and active/experiential learning.
- All courses have increased emphasis on problem solving, estimation, and real-world applications.
- Evaluation includes alternative methods of assessment.
- All strands addressed in the Sunshine State Standards are developed across the PreK-12 curriculum.

- A. Major Concepts/Content.** The purpose of this course is to develop the geometric relationships and deductive strategies that can be used to solve a variety of real world and mathematical problems.

The content will include, but not be limited to, the following:

- geometric constructions
- terminology and fundamental properties of geometry
- deductive and inductive reasoning and their application to formal and informal proof
- formulas pertaining to the measurement of plane and solid figures
- coordinate geometry and transformations on the coordinate plane
- exploration of geometric relationships such as parallelism, perpendicularity, congruence, and similarity
- properties of circles
- right triangle trigonometry

This course shall integrate Goal 3 Student Performance Standards of the Florida System of School Improvement and Accountability as appropriate for the content and processes of the subject matter.

- B. Special Note.** Students earning credit in Geometry may not earn credit in Geometry Honors.
- C. Course Requirements.** These requirements include the benchmarks from the Sunshine State Standards that are most relevant to this course. The benchmarks printed in regular type are required for this course. **The portions printed in *italic type* are not required for this course.**

**After successfully completing this course, the student will:**

- 1. Demonstrate an understanding of the terminology and fundamental properties of geometry.**
  - MA.C.2.4.1 understand geometric concepts such as perpendicularity, parallelism, tangency, congruency, similarity, reflections, symmetry, and transformations including flips, slides, turns, enlargements, rotations, and fractals.
  - MA.C.2.4.2 analyze and apply geometric relationships involving planar cross-sections (the intersection of a plane and a three-dimensional figure).
- 2. Demonstrate an understanding of deductive and inductive reasoning.**
  - MA.C.1.4.1 use properties and relationships of geometric shapes to construct formal and informal proofs.
- 3. Demonstrate the ability to solve real-world problems by using geometric models and/or applying geometric properties.**
  - MA.A.3.4.3 add, subtract, multiply, and divide real numbers, including square roots and exponents, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.
  - MA.A.4.4.1 use estimation strategies in complex situations to predict results and to check the reasonableness of results.
  - MA.B.1.4.1 use concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two- and three-dimensional shapes, including rectangular solids, cylinders, cones, and pyramids.
  - MA.B.1.4.2 use concrete and graphic models to derive formulas for finding *rate*, distance, *time*, angle measures, and arc lengths.

- MA.B.1.4.3 relate the concepts of measurement to similarity and proportionality in real-world situations.
  - MA.B.2.4.1 select and use direct (measured) and indirect (not measured) methods of measurement as appropriate.
  - MA.B.3.4.1 solve real-world and mathematical problems involving estimates of measurements, including length, *time*, *weight/mass*, *temperature*, *money*, perimeter, area, and volume and estimate the effects of measurement errors on calculations.
  - MA.C.3.4.1 represent and apply geometric properties and relationships to solve real-world and mathematical problems including ratio, proportion, and properties of right triangle trigonometry.
- 4. Demonstrate an understanding of transformational and coordinate geometry.**
- MA.C.2.4.1 understand geometric concepts such as perpendicularity, parallelism, tangency, congruency, similarity, reflections, symmetry, and transformations including flips, slides, turns, enlargements, rotations, and fractals.
  - MA.C.3.4.2 using a rectangular coordinate system (graph), apply and algebraically verify properties of two- *and three*-dimensional figures, including distance, midpoint, slope, parallelism, and perpendicularity.