San Bernardino Valley College
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I. CATALOG DESCRIPTION

Mathematics; Math 093; Plane Geometry
Lecture: 3 hours per week = 3 units
A review of high school geometry, including mathematical logic, geometric constructions congruences, similarities, and other properties of basic closed plane figures.
Prerequisite: MATH 090, Elementary Algebra with a grade of C or better or eligibility for MATH 095 as determined through the SBVC assessment process.

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS

Upon completion of the course, the student should be able to:

A. Distinguish and use inductive and deductive reasoning and construct valid arguments
B. Use a straight edge and compass to obtain basic geometric construction.
C. Apply the basic triangle congruency theorems
D. Apply the basic theorems involving parallel and perpendicular lines.
E. Recognize the properties of special quadrilaterals such as parallelograms, rectangles, squares, rhombuses and trapezoids and apply the appropriate area formula to each.
F. Apply the theorem of Pythagoras and recognize the special properties of the 30°- 60°- 90° and 45°- 90° triangles.
G. Apply basic theorems involving similar triangles
H. Apply basic theorems involving circles and their chords, tangents and secants.

IV. CONTENT

A. Fundamental Concepts and Logic
    1. Inductive and Deductive Reasoning
    2. Valid Arguments
    3. Euler Circles
    4. Basic Constructions
B. Congruent Triangles
    1. Basic Theorems Involving Congruent Triangles
    2. Isosceles Triangles
C. Parallel Lines
    1. Basic Theorems Involving Parallel Lines
    2. Sum of the Angles in a Triangle
    3. Sum of the Angles in a Polygon.
D. Quadrilateral
    1. Basic Theorems Involving Quadrilateral
    2. Rectangles and Rhombuses
    3. Trapezoids
E. Areas
    1. Polygons
F. Similarity
    1. Basic Theorems Involving Similar Triangles

G. Circles
1. Basic Theorems Involving Circles
2. Theorems Involving Chords, Tangents, and secants

V. METHODS OF INSTRUCTION:

Methods of instruction will vary from instructor to instructor, but may include
A. lecture, discussion, computer demonstrations, audio-visual aids, filmstrips and cassettes.
B. Student assignments outside of class will be equivalent to 6 hours per week and may include reading, problem solving, use of computers, previewing filmstrips and/or cassettes, and study group discussions.

VI. TYPICAL ASSIGNMENTS:

A. At the end of each section there is a set of problems. These start with problems that require the student to recognize and apply the principles covered in the section. The problems then graduate into those requiring the application of two or more principles and the student must recognize the principles to apply and the correct order in which to apply them. Typical problem sets end with application problems in which the student must translate the words in the problem into appropriate mathematical symbols, and analyze which principles must be applied. The student must then formulate and apply a solution strategy.

B. Written assignments will include solutions of various problems illustrative of the appropriate mathematical concepts and processes.

VII. EVALUATION(S)
A. Methods of evaluation will vary from instructor to instructor, but may include objective tests, true-false tests, homework and/or quizzes.

B. Comprehensive final examination.

VIII. TYPICAL TEXT(S)

Lial Steffensen Johnson, Essentials of Geometry for College Students, Harper Collins

IX. OTHER SUPPLIES REQUIRED OF STUDENTS: a compass and straight edge.