JEFFERSON COLLEGE

COURSE SYLLABUS

MTH 009

GEOMETRY

1 Credit Hour

Prepared By:
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Revised Date: September 9, 2008
by:
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Arts & Science Education
Dr. Mindy Selsor, Dean
**MTH009 Geometry**

I. **CATALOG DESCRIPTION**

A. Prerequisite: None

B. 1 semester credit hour

C. Geometry is designed as an introduction to basic Euclidean Geometry. This course is intended for those students who feel they need to review or to learn geometry in preparation for further mathematics courses. Geometry is not applicable toward the Associate degree (F, S, Su).

II. **EXPECTED LEARNING OBJECTIVES/ASSESSMENT MEASURES**

| Students will employ terms and definitions to solve geometric problems. | Written Exam  
Worksheet  
Practice Test  
In class performance, observation, discussion, oral recitation of terms, definitions, review, analysis of test errors. |
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| Students will analyze the characteristics of geometric figures to identify the figure. | Written Exam  
Worksheet  
Practice Test  
In class performance, observation, discussion, review, analysis of test errors. |
| Students will select and apply appropriate rules and/or formulas to evaluate answers (including label). | Written Exam  
Worksheet  
Practice Test  
Oral recitation of rules and formulas, in class performance, observation, discussion, review, analysis of test errors. |
| Students will calculate measurements of sides, angles and arcs of various geometric figures through application of their relationship to one another. | Written Exam  
Worksheet  
Practice Test  
In class performance, observation, discussion, review, analysis of test errors. |
III COURSE OUTLINE WITH UNIT OBJECTIVES

A. Points, Lines and Planes
   1. Definitions of Point, Line and Plane
   2. Notations for Lines, Segments and Rays
   3. Collinear and Noncollinear Points
   4. Intersecting, Parallel and Skew lines
   5. Determining Planes by Points and/or Lines
   6. Intersecting and Parallel Planes
   7. Intersecting Lines and Planes

B. Angles
   1. Definition of an Angle
   2. Angle Terminology (Vertex, Sides, Exterior and Interior) and Notation
   3. Measuring Angles with a Protractor
   4. Sums and Differences of Angles
   5. Adjacent, Vertical, Supplementary and Complementary Angles
   6. Acute, Right, Obtuse, Straight and Reflex Angles
   7. Transversals, Alternate Interior Angles and Corresponding Angles

C. Triangles
   1. Definition of a Triangle and Triangle Terminology
   2. Congruence of Line Segments, Angles and Triangles
   3. The Three Statements of Congruence of Triangles (S.A.S.)
      (A.S.A.) (S.S.S.)
   4. Types of Triangles (Scalene, Isosceles, Equilateral, Acute, Obtuse and Right)

D. Polygons
   1. Definition of a Curve, Simple Curve, and Closed Curve
   2. Definition of a Polygon, Convex Polygon and Regular Polygon
   3. Polygon Terminology
   4. Classification of Polygons by the Number of Sides of the Polygon
   5. The Sum of the Measures of the Interior Angles of a Regular Polygon and the Measures of the Individual Interior Angles
   6. Classification and Properties of Quadrilaterals
   7. Conditions for a Quadrilateral to be a Parallelogram

E. Perimeter, Area, and Volume
   1. Units of Linear Measure
   2. Applications of Linear Measure (perimeter)
   3. Perimeter of Rectangles and Squares
   4. Area of Rectangles, Squares, Triangles, Parallelograms and Trapezoids
   5. Volume of Rectangular Solids, Right Prisms and Pyramids
F. Similarity and Proportion
   1. Similar Figures
   2. Similar Polygons
   3. Using Proportions to Solve Problems involving Similarity
   4. Conditions for Similarity
   5. Similarity of Triangles
   6. Pythagorean Theorem
   7. Special Triangles (30° – 60° Right Triangle and 45° – 45° Isosceles Right Triangle)

G. Circles
   1. Circle Terminology (Chord, Diameter, Radius, Secant and Tangent)
   2. Central Angles and their Arcs
   3. Inscribed Angles and their Arcs
   4. Circumference and Area of a Circle
   5. Volumes of Cylinders, Cones and Spheres
   6. Surface Area of a Sphere

IV. METHOD OF INSTRUCTION

A. Individual Instruction (based on mastery learning)

B. Assigned Reading in the Workbook

C. Visual Aids

V. REQUIRED TEXTBOOK

No Published Textbook Required

VI. REQUIRED MATERIALS

Jefferson College Learning Center Geometry Workbook
Notebook paper and pencils.
Calculator permitted
Protractor

VII. SUPPLEMENTAL REFERENCES

Geometrical Solids
Geometry Cliff Notes
My Math Lab
VIII. METHOD OF EVALUATION

A. Seven Written Exams

B. One Comprehensive Final Exam

Grades will be based on:

A 90% to 100%

B 80% to 89%

F All required units not completed.

This course is Mastery based, thus students are not able to earn grades of C or D.

Note: all tests are closed book, closed note. Calculators are permitted.

IX. ADA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library; phone 636-797-3000, ext. 169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College Website: http://vega.jeffco.edu/jkuchar/publications/student%20handbook%2007-08.pdf).