IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE

COURSE OUTLINE

DIVISION: Science, Mathematics and Engineering   **DATE:**   September   2000

COURSE TITLE: Geometry in Elementary Mathematics   **COURSE NO.:** Math 112   **UNITS:** 3

   LEC HRS.   3   **LAB HRS.**   **HRS. TBA**

   If cross-referenced, please complete the following

   COURSE NO.(s)   **COURSE TITLE**

 I.   **COURSE/CATALOG DESCRIPTION:**

      Recommended for students who are working towards a teaching credential in elementary education.   Topics discussed are decimals and percents, geometry, geometric constructions, rotations, translations, measurements and problem solving.

II.   **A.   PREREQUISITES, if any:**

   Math 090 with a grade of "C" or better

   B.   COREQUISITES, if any:

   C.   RECOMMENDED PREPARATION, if any:

      Math 10A with a grade of "C" or better

III.   **GRADING CRITERIA:**

      X   Course must be taken on a "letter-grade" basis only.

                Course may be taken on a "credit" basis or for a letter grade.

                Course must be taken on a "credit" basis only.

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

1. The student will recognize two and three dimensional geometry, and solve a number of applications.

2. The student will demonstrate the basic idea of congruence and similarity and actively develop a number of geometric constructions.

3. The student will identify and apply different kinds of transformations, and various types of symmetries.

4. The student will recognize a variety of geometric figures, and be able to use and apply formulae in both geometric and non-geometric context.

5. The student will graph using the Cartesian system of coordinates and will recognize the relationship that exists between algebra and geometry.

6. The student will solve word problems using the basic concepts of geometry and will identify various geometric patterns.

7. The student will demonstrate a knowledge of statistics and probabilitiy.

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

CORE CONTENT	APPROX. % OF COURSE

1. Introductory geometry
   A. Basic concepts and vocabulary
   B. Polygonal curves in a plane
   C. Classifying two-dimensional figures
   D. Three dimensional figures
	15%

2. Constructions, congruence, and similarity
   A. Geometric construction
   B. Geometric congruence
   C. Similarity in geometric figures
	15%

3. Transforming shapes
   A. Translations
   B. Reflections
   C. Rotations
   D. Tesselations of the plane
   E. Symmetry
	15%

4. Measurement
   A. Units of measurement
   B. Perimeter and area of polygons and circles
   C. Pythagorean Theorem
   D. Surface area
   E. Volume
	20%

5. Coordinate geometry
   A. System of coordinates
   B. Equations of lines
   C. Systems of linear equations
   D. Distance and midpoint formulae
	15%

6. Problem solving in geometry
   A. Word problems involving geometry
   B. Geometric pattern identification
	10%

7. Introduction to statistics and probability
   A. Graphs and tables
   B. Analyzing data for deception, centers, spread, and sampling
   C. Experimental and theoretical probability
	10%

VI.   METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS: (check all that apply)

Essay	X	**Class Activity**	X	**Written Assignments**	X
Problem Solving Exercise	X	**Final Exam**	X	**Oral Assignments**	X
Skill Demonstration	X	**Objective**	X	**Quizzes**	X
Other	X				

VII.   INSTRUCTIONAL METHODOLOGY: (Check all that apply)

Lecture	X	**Discussion**	X	**Demonstration**	X
Audio Visual	X	**Group Activity**	X	**Lab Activity**	X
Computer Assisted Instruction	X	**Individual Assistance**	X	**Simulation/ Case Study**	X

Two (2) hours of independent work done out of class per each   hour of lecture or class work, or 3 hours lab, practicum, or the equivalent per unit.   _____

Other

VIII. TEXTBOOK(S) AND SUPPLEMENT(S):

Bassarear, , Tom. *Mathematics for Elementary School Teachers*. Boston: Houghton Mifflin, 1997.

Billstei, et.al. *A Problem Solving Approach to Mathematics for Elementary School Teachers.*
Reading, MA:Addison Wesley, 1997.

Long, DeTemple. *Mathematical Reasoning for Elementary Teachers*. Reading, M.A.: Addison-Wesley, 1996.

O'Daffer. *Mathematics for Elementary Teachers.* Reading M.A.:Addison-Wesley, 1998.

Software as needed:
Logo
Geometors Sketchpad
Stat Explorer