

COCONINO COMMUNITY COLLEGE
COURSE OUTLINE

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Effective Term: Fall 2020

February 2, 2008
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A. Identification:

1. Subject Area: Math (MAT)
2. Course Number: 181
3. Course Title: Mathematics for the Elementary Teacher II
4. Credit Hours: 3
5. Course Description: Prerequisite: MAT 180. Mathematical foundations of the elementary school mathematics curriculum including measurement, geometry, probability, and statistics. Emphasizes the use of models and manipulatives to increase understanding of the mathematical concepts. Three lecture.

B. Course Goals: To develop within the student an understanding of the concepts of probability; statistics; one, two, and three dimensional geometry; motion geometry; and measurement to be applied in the elementary school curriculum.

C. Course Outcomes:

Students will be able to:

1. represent and interpret data using a variety of graphing techniques;
2. analyze and interpret distributions of data using a variety of measures;
3. analyze and discuss concepts related to probability and counting principles;
4. define and analyze basic concepts of two dimensional geometry;
5. define and analyze basic concepts of three dimensional geometry;
6. define and analyze the concepts of motion geometry;
7. define and describe systems of measurement using both the metric and U.S. customary system;
8. construct a wide range of geometric shapes using a compass and a straight edge;
9. and use mathematical manipulatives to examine, evaluate, and explain mathematical concepts.

D. Course assessment:

Must include:

a comprehensive final exam.

E. Course Content will include:

1. introduction to probability and statistics:
 - a. graphs;
 - b. distribution, central tendency, and variability;
 - c. probability;
 - d. counting principles;
2. introduction to geometry:
 - a. points;
 - b. lines;
 - c. planes;
 - d. angles;
 - e. closed curves;
 - f. polygons;
 - g. polyhedra;

- h. pyramids;
 - i. cylinders;
 - j. cones;
 - k. spheres;
3. motion geometry:
- a. translations;
 - b. reflections;
 - c. rotations;
 - d. congruence;
 - e. tessellations;
 - f. symmetry;
 - g. similarity
4. concepts of measurement:
- a. metric system;
 - b. U.S. customary system;
 - c. weight;
 - d. time;
 - e. perimeter;
 - f. circumference;
 - g. Pythagorean Theorem;
 - h. area;
 - i. volume;
5. constructions:
- a. line;
 - b. angle;
 - c. bisection;
 - d. inscribing.