COURSE INFORMATION FORM

DISCIPLINE: Math 136
COURSE TITLE: Geometry, Probability, and Statistics for Elementary Teachers

CR. HR: 3
LECT HR: 
LAB HR: 
CLIN/INTERN HR: 
CLOCK HR: 

CATALOG DESCRIPTION
Designed for elementary school teachers. A development from informal geometric concepts to elements of the Euclidean deductive system; groups of congruence transformations, similarity transformations and symmetries; coordinate systems and vectors.

PREREQUISITES
Math 119 or higher

EXPECTED STUDENT OUTCOMES IN THE COURSE
Upon completion of this course, the student will be able to:

Note: These outcomes are all associated with the educational setting related to elementary education and how these items will relate to the classroom usage, demonstration and teaching.

1. Calculate probability of simple and complex experiments.
2. Calculate odds, expected value, permutations and combinations.
3. Interpret and draw various statistical graphs and charts.
4. Calculate measures of central tendency and dispersion of data.
5. Measure various objects using English and Metric systems.
6. Convert within, and between, English and Metric units.
7. Use attributes of geometric figures to draw shapes and solve problems.
8. Use congruence and similarity to solve problems.
9. Transform geometric figures.
CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)
Assessment measures may include some or all of the following:
Written assignments (1-11)
Group assignments (1-11)
Lab assignments (1-11)
Homework (1-11)
Exercises (1-11)
Quizzes (1-11)
Exams (1-11)
Papers (1-11)
Special projects (1-11)
Classroom demonstrations (1-11)
Comprehensive final exam (1-11)

PROGRAM-LEVEL OUTCOMES ADDRESSED

General Education Outcomes
Specify which general education outcomes, if any, are substantially addressed by the course by completing the “Course/Program Assessment Matrix” to show the relationship between course and program outcomes and assessment measures.
Quantitative Literacy, Critical Thinking

Occupational Program Outcomes
Specify which occupational program outcomes, if any, are substantially addressed by the course by completing the “Course/Program Assessment Matrix” to show the relationship between course and program outcomes to assessment measures.
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Probability
   a. Simple and complex experiments
   b. Conditional probability
   c. Expected value
   d. Odds
   e. Permutations combinations
   f. Theoretical and experimental probability.

II. Statistics
   a. Interpreting and drawing graphs – line graphs, stem and leaf, pictograph, histograms, pie charts and box plots.
   b. Measures of Central tendency – mean, median, mode and percentiles.
   c. Measures of Dispersion - range, variance and standard deviation.
   d. Attributes of the Normal Distribution.
   e. Discussions regarding misleading statistics.

III. Measurement
   a. Temperature measures and conversions.
   b. Measurement in English and Metric systems.
   c. Conversions within and between English and Metric systems.
   d. Parameter and area of polygons
   e. Circumference and area of circles.
   f. The Pythagorean Theorem and applications.
   g. Surface area and volume of three dimensional figures including prisms, cylinders, pyramids, cones and spheres.

IV. Geometric Shapes.
   a. Definitions and attributes – 2nd and 3- dimensional figures and platonic solids.
   b. Angle measures and attributes.
   c. Drawing geometric figures and shapes. 2nd and 3- dimensions.
   d. Transversal lines and associated angles.
   e. Angle measurement and applications.

V. Relationships between Geometric shapes.
   a. Congruency and similarity.
   b. Parallel lines, perpendicular bisectors and angle bisectors.
   c. Inscribe a regular polygon in a circle.

VI. Geometric Transformations.
   a. Translations, rotations, reflections and transformations of geometric figures.
   b. Tessellations.