Course Information Form (CIF)

Course Code: MAT 106 (IAI M1 903)

Course Title: Mathematics for Elementary Teachers II

Department: Mathematics
PCS Code: 1.1 - Baccalaureate/Transfer
CIP Code: 13.1202
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 3-0-3
Credit Hour Distribution:

Lecture: 3	Lab: 0	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Continuation of MAT 105. Concepts from statistics, probability, and geometry including development of geometric thinking, geometric figures, transformations, and measurement. Focuses on reasoning, making connections, and multiple representations. Satisfies general education requirements only for students seeking state certification as elementary teachers.

General Course Objectives

Students in MAT 106 will learn and practice the mathematical skills and concepts necessary to teach in elementary school. This course satisfies the mathematics requirement for state certification as an elementary teacher.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Credit in MAT 098 with a grade of C or higher, or placement
Credit in MAT 105 with a grade of C or higher

Methods of Evaluation

3 exams, 4-8 quizzes, homework, 2-3 teaching assignments, and a cumulative final exam.

Instructional Materials and Additional Supplies

Mathematics for Elementary School Teachers, 7th edition, by Bassarear and Moss. 1-3376-2996-0

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Representing Data	1. Construct frequency tables and appropriate graphical representations (such as line plot, circle graph, bar graph, histogram, stem-and-leaf). 2. Discuss misleading representations of data.	2	0	0
Statistics	1. Calculate and interpret measures of central tendency and discuss methods of presentation to elementary students. 2. Solve applied problems involving means, weighted means, and GPA. 3. Construct and interpret box plots. 4. Calculate and interpret standard deviation. 5. Apply the empirical rule for normal distributions. 6. Interpret percentiles.	5	0	0
Probability	1. Calculate basic probabilities by constructing sample spaces. 2. Identify mutually exclusive events and use the addition rule. 3. Calculate probabilities of complements. 4. Identify independent and dependent events and use the multiplication rule. 5. Calculate expected values. 6. Apply the counting principle and calculate permutations and combinations. 7. Discuss methods of presentation to elementary students.	4	0	0
Geometric Thinking	1. Understand stages of spatial and geometric thinking in childhood development. 2. Use basic geometric terms related to lines, angles, and simple closed curves. 3. Identify and apply properties of triangles and quadrilaterals. 4. Identify properties of polygons and apply theorems related to angles and diagonals. 5. Apply basic concepts from coordinate geometry including distance, midpoint, and slope. 6. Describe properties of common solids (including Euler's formula for polyhedra) and relate common solids to their 2D nets. 7. Discuss methods of presentation to elementary students.	8	0	0
Transformation Geometry	1. Perform and describe the results of congruence transformations. 2. Identify and describe types of symmetry. 3. Describe tessellation patterns and identify polygons that will tessellate. 4. Solve applied problems involving dilations and similar figures. 5. Discuss methods of presentation to elementary students.	5	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Measurement	1. Discuss the historical development of measurement systems. 2. Choose appropriate units of measure in the US and metric system and convert units within each system. 3. Develop and apply formulas for the perimeter and area of triangles, quadrilaterals, and circles. 4. Determine (exactly or by estimation when appropriate) areas of composite and irregular figures. 5. Calculate the volume of prisms and cylinders as the product of base area and height, and pyramids and cones as one-third of the product of base area and height. 6. Calculate the surface area of prisms, pyramids, and cylinders by relating the solid to its net. 7. Develop and apply formulas for the surface area and volume of a sphere. 8. Discuss methods of presentation to elementary students.	10	0	0
Further Applications	1. Apply knowledge gained in the course to further topics of the instructor's choice in the areas of discrete math, number theory, topology, fractal geometry, and geometry applications (examples include Euler paths and circuits, map coloring, fractals, the golden ratio, Pascal's triangle, and Mobius strips).	3	0	0
Review and Tests	1. Earn at least a 70 percent on each exam and the cumulative final exam.	8	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	0	0