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Effective: Fall 2020

A. Identification:
1. Subject Area: Math (MAT)
2. Course Number: 180
3. Course Title: Mathematics for the Elementary Teacher I
4. Credit Hours: 3
5. Course Description: MAT 097 or placement test score beyond prerequisite course. Mathematical foundations of elementary school mathematics curriculum, including problem solving, principles of whole numbers, integers, rational numbers, ratios, proportions and percentages. 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 mathematical concepts in the elementary school curriculum and to enable them to develop mathematical thinking and a conceptual focus.

C. Course Outcomes:
Students will be able to:

1. identify and apply various strategies for problem solving;
2. verify and interpret results with respect to problem solving;
3. identify a variety of important number sets and their properties (natural, whole, integers, rational, and real);
4. examine the operations of addition, subtraction, multiplication, and division using algorithms and models;
5. develop strategies for mental mathematics and estimation;
6. examine the relationships and rules of number theory (factors, multiples, divisibility, prime and composite numbers);
7. describe and solve problems involving ratios, rates, proportions, percents, and scientific notation;
8. describe the concepts of relation and function using graphs and algebraic equations;
9. identify patterns and sequences;
10. utilize algebra as a symbolic language and solve basic algebraic equations;
11. use mathematical manipulatives to examine, evaluate, and explain mathematical concepts;
12. and discuss the current curriculum standards for grades K-8.

D. Course Outcomes Assessment:
Must include:
a comprehensive final exam.

E. Course Content will include:
1. problem solving;
2. operations of numbers (natural, whole, integers, rational, and real);
3. number theory;
4. ratios, rates, proportions, percents, and scientific notation;
5. relations, functions, and sequences;
6. and basic algebra.