COURSE NUMBER: MAT201

COURSE TITLE: Mathematics for Teachers I

Faculty Name:

Contact Information:

Pre-Requisite: Pass math skills assessment or MAT110 with a “C” or better

Text/Software:

Credits: 3

40 Hours of Structured Learning Activities

COURSE DESCRIPTION:
This class will prepare teacher candidates to become effective mathematics teachers in their own classrooms. Through mathematical investigations, candidates will learn the underlying concepts, structures, functions and patterns that promote mathematical reasoning and understanding. Candidates will investigate how moving progressively through essential topics deepens their understanding of mathematics. Students will use the National Council of Teachers of Mathematics Standards and STEM strategies. Various methods such as modeling, collaboration, manipulatives, thinking made visible, and writing across the curriculum will be presented for bridging classroom activities and real-world problem solving. Teacher candidates will learn how to analyze their students’ math-solving processes by developing thorough explanations of their own mathematical understanding and critiquing the explanation of others’ mathematical understandings. Candidates will communicate their mathematical ideas, processes, analyses and understandings through both writing and speaking. This course concentrates on numbers and operations and their application to student learning and classroom teaching.

At the conclusion of this course students will be asked to evaluate the course based on the following objectives:

- Gain factual knowledge (terminology, classifications, methods, trends).
- Learn fundamental principles, generalizations or theories.
- Learn to apply course material (to improve thinking, problem solving and decisions).
COURSE GOALS

GOAL A: Students will apply problem solving techniques to a variety of mathematical applications.

Learning Objectives: Students will be able to:
A-1 Solve application problems using Polya’s four step method.
A-2 Solve problems using a variety of techniques, including pattern recognition and inductive reasoning.
A-3 Explain and use the Principles and Standards for School Mathematics as created by the National Council of Teachers of Mathematics.

GOAL B: Students will exhibit number sense.

Learning Objectives: Students will be able to:
B-1 Represent numbers in expanded form verbally, in writing and with manipulatives.
B-2 Identify place values of digits within a number verbally and represent the meaning of that place value in writing with diagrams and with manipulatives.
B-3 Round multi-digit numbers to any place value.
B-4 Determine factors of numbers, prime numbers and composite numbers and represent them using models.
B-5 Determine multiples of numbers and represent them using models.
B-6 Classify numbers using Venn diagrams and set operations.

GOAL C: Students will work proficiently with operations and properties of numbers.

Learning Objectives: Students will be able to:
C-1 Convert rational numbers to their basic forms, fractions, decimals and percents, through writing and with models.
C-2 Compare and order rational numbers, through writing and with models.
C-3 Add, subtract, multiply and divide rational numbers using models and explain the process verbally and in writing.
C-4 Perform operations using various number systems and bases.
C-5 Simplify expressions, including those with exponents and radicals, using the order of operations.
C-6 Identify and use properties, associative, distributive and commutative, to simplify the process of evaluating expressions.

EVALUATION PROCEDURE AND GRADING POLICY:
LATE ASSIGNMENT POLICY:

CAS CLASSROOM STANDARDS: See Blackboard “Syllabus” area

COURSE SCHEDULE (all assignments/exams and due dates):