COURSE NUMBER: MAT304

COURSE TITLE: Math for Teachers 3

Faculty Name:

Contact Information:

Pre-Requisite: Pass MAT202 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 Common Core 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 algebra and functions 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 simplify and evaluate algebraic expressions.

Learning Objectives: The student will:
A-1 Differentiate between expressions and equations.
A-2 Generate and identify equivalent expressions.
A-3 Identify independent and dependent variables.
A-4 Evaluate formulas, including the Pythagorean theorem.
A-5 Translate between verbal and algebraic expressions.

GOAL B: Students will analyze linear relationships.

Learning Objectives: The student will:
B-1 Determine and use unit rates and ratios to solve problems.
B-2 Use proportional relationships in real-world problems.
B-3 Plot points on the coordinate plane; identify axes and quadrants.
B-4 Make connections between proportional relationships and linear equations, modeling algebraically, graphically, and using tables.
B-5 Reason about and solve one-variable equations and inequalities, modeling algebraically, graphically, and using function tables.
B-6 Reason about and solve simultaneous equations, modeling algebraically, graphically, and using function tables.
B-7 Identify, extend, and describe patterns.

GOAL C: Model real-world problems with quadratic and exponential functions.

Learning Objectives: The student will:
C-1 Analyze graphs of quadratic and exponential functions that model real-world data.
C-2 Predict outcomes based on quadratic and exponential functions.
C-3 Use exponential models to determine simple and compound interest.

EVALUATION PROCEDURE AND GRADING POLICY:

LATE ASSIGNMENT POLICY:
CAS CLASSROOM STANDARDS: See Blackboard “Syllabus” area

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