8/30/2022 DATE

☑ REQUIRED COURSE
☑ ELECTIVE COURSE

MSD   DIVISION
☐ NEW COURSE
☑ REVISION

Lake Land College
Course Information Form

COURSE NUMBER:	MAT-118		TITLE: *(30 Characters Max)*		Mathematics for Elementary Teachers I		
SEM CR HRS:	3	Lecture:	3		Lab:	0	ECH: 3
Course Level:	☐ Gen Ed / IAI ☑ Baccalaureate /Non-IAI	☐ Career/Technical ☐ Dev Ed/ Not in Degree Audit	Clinical Practicum: 0	Work-based Learning 0	WBL ECH: 0		
COURSE PCS #	11 - 13.1202		IAI Code			Contact Hours (Minutes Per Week)	
Repeatable (Y/N): N	Pass/Fail (Y/N): N	Variable Credit (Y/N):	Min:	Max:	16 Wks 150	8 Wks 300	

Prerequisites: Placement by assessment or either MAT-115, MAT-124 or MAT-129 with a grade of "C" or higher or STEM Transitional Math (TM001). Also one year of high school geometry or MAT-009

Catalog Description: (40 Word Limit) A course designed for Elementary Education majors. Topics include number theory, development of numeration systems, sets, functions, mathematical reasoning and problem solving. Counts as general education requirement for elementary education majors when taken in sequence with MAT-218. Calculator usage defined.

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Introduction to Problem Solving and Patterns	4			
Sets	3			
Numeration Systems	2			
Whole Numbers - Operations and Properties	5			
Whole Number Computation	2			
Number Theory	4			
Integers-Operations, Properties, and Computation	3			
Rational Numbers-Operations, Properties, and Computation	5			
Proportional Reasoning and Percents	4			
Decimals-Operations, Properties, and Computation	4			
Variables and Equations	3			
Functions	3			
Graphing	3			
TOTAL	45	0	0	0

EVALUTAION

QUIZZES ☑	EXAMS ☑	ORAL PRES ☐	PAPERS ☐
LAB WORK ☐	PROJECTS ☑	COMP FINAL ☑	OTHER ☐

COURSE MATERIALS

TITLE:	Problem Solving Appr. Math Elem. School Teachers	
AUTHOR:	Billstein, Libeskind, Lott	
PUBLISHER:	Prentice Hall	
VOLUME/EDITION/URL:	13th	
COPYRIGHT DATE:	2020	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Introduction to Problem Solving	2	Apply problem solving approaches to investigate and Demonstrate mathematical content in a wide variety of problems.
Patterns	2	Apply problem solving skills and formulas to find patterns and solve pattern related application problems
Sets	3	Demonstrate basic set definitions and set operations, solve application problems involving sets
Numeration Systems	2	Demonstrate our numeration systems and systems using different bases by relating counting, grouping, and place value
Whole Number Operations	3	Develop meaning for addition, subtraction, multiplication, and division and relate the mathematical language and symbolism of operations with and without a calculator

Whole Number Properties	2	Develop meaning for whole number properties and Apply properties to compute and solve problems with and without a calculator
Whole Number Computation	2	Select and Apply an appropriate method for computing from among several methods (including the Apply of calculators) and determine whether the results are reasonable with and without a calculator
Prime Numbers and Tests for Divisibility	2	Demonstrate prime numbers and develop and apply divisibility tests while problem solving with and without a calculator
Greatest Common Factor and Least Common Multiple	2	Develop and apply number theory concepts including GCF and LCM in real-world and mathematical problem situations with and without a calculator
Integer Operations, Properties, and Computation	3	Develop and apply concepts relations to negative numbers in real-world and mathematical problem situations with and without a calculator
Rational Number Operations and Properties	4	Develop meaning for addition, subtraction, multiplication, and division on fractions and Demonstrate rational number properties with and without a calculator
Rational Number Computation	1	Develop and apply concepts relating to fractions in real world and mathematical problem situations with and without a calculator
Ratios and Proportions	1	Define ratios, rates and proportions and Apply definitions to solve problems with and without a calculator
Proportional Reasoning and Percents	3	Develop and apply concepts relating to fractions and percents in real-world and mathematical problem situations with and without a calculator
Decimal Operations, Properties, and Computation	4	Develop and apply concepts relating to decimals in real-world and mathematical problem situations with and without a calculator
Introduction to Algebra and Equations	3	Demonstrate definitions associated with algebra and Apply develop skills to solve algebraic equations
Functions	3	Demonstrate the definition of functions and develop skills to problem solve with function related problems
Graphing functions and systems of equations	3	Demonstrate the graphs of functions and develop skills to recognize and create graphs of functions. Solve systems of equations by graphing, elimination, and isolating variables
	45	

COURSE OUTCOMES*	At the successful completion of this course, students will be able to:
	· Demonstrate and apply the four-step process for mathematical problem solving. (Polya process)
	· Demonstrate and Apply the appropriate computational operation for whole numbers, integers, and rational numbers with and without a calculator.
	Demonstrate and apply the pedagogy for teaching basic mathematical concepts.

Course Outcomes will be Applyd in the Assessment Software for Outcomes Assessment. Limit to 3 - 5.