

Glendale College

Course Outline of Record Report

Course ID 003261

Revision - May 2023

MATH138 : Mathematics For Elementary Teachers I

General Information

Author:	<ul style="list-style-type: none"> Suzanne Palermo
Course Code (CB01) :	MATH138
Course Title (CB02) :	Mathematics For Elementary Teachers I
Department:	MATH
Proposal Start:	Fall 2023
TOP Code (CB03) :	(1701.00) Mathematics, General
CIP Code:	(27.0101) Mathematics, General.
SAM Code (CB09) :	Non-Occupational
Distance Education Approved:	Yes
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000298820
Curriculum Committee Approval Date:	05/10/2023
Board of Trustees Approval Date:	06/20/2023
Last Cyclical Review Date:	10/01/2019
Course Description and Course Note:	MATH 138 is designed for prospective elementary school teachers. Topics in this course include: problem-solving techniques, set operations, functions, number theory, ratio, proportion, and percent.
Justification:	Coding/Category Change
Academic Career:	<ul style="list-style-type: none"> Credit
Author:	<ul style="list-style-type: none"> Suzanne Palermo

Academic Senate Discipline

Primary Discipline:	<ul style="list-style-type: none"> Mathematics
Alternate Discipline:	No value
Alternate Discipline:	No value

Transferability & Gen. Ed. Options

General Education Status (CB25)

GE Status (CSU) B4, (UC) 2

Transferability

Transferability Status

Transferable to both UC and CSU

Approved

CSU GE-Breadth Area	Area	Status	Approval Date	Comparable Course
B4-Mathematics/Quantitative Reasoning	Mathematics/Quantitative Reasoning	Approved	08/18/1998	No Comparable Course defined.

C-ID	Area	Status	Approval Date	Comparable Course
MATH	Mathematics	Approved	08/27/2018	MATH 120 - Mathematical Concepts for Elementary School Teachers - Number Systems

Units and Hours

Summary

Minimum Credit Units (CB07)	3
Maximum Credit Units (CB06)	3
Total Course In-Class (Contact) Hours	54
Total Course Out-of-Class Hours	108
Total Student Learning Hours	162

Credit / Non-Credit Options

Course Type (CB04)	Noncredit Course Category (CB22)	Noncredit Special Characteristics
Credit - Degree Applicable	Credit Course.	No Value

Course Classification Code (CB11)	Funding Agency Category (CB23)	<input type="checkbox"/> Cooperative Work Experience Education Status (CB10)
Credit Course.	Not Applicable.	

Variable Credit Course

Weekly Student Hours

Course Student Hours

	In Class	Out of Class	Course Duration (Weeks)	
Lecture Hours	3	6		18
Laboratory Hours	0	0		0
Studio Hours	0	0		0
Course In-Class (Contact) Hours				
			Lecture	54
			Laboratory	0
			Studio	0
			Total	54
Course Out-of-Class Hours				
			Lecture	108

Laboratory	0
Studio	0
Total	108

Time Commitment Notes for Students

No value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Prerequisite

MATH90 - Intermediate Algebra for BSTEM (in-development)

Objectives

- Solve absolute value equations and inequalities;
- solve linear equations and compound inequalities;
- perform operations with polynomials;
- solve rational equations;
- solve equations with radicals;
- solve applied problems;
- solve quadratic equations with real and complex solutions;
- graph functions (linear, quadratic, exponential, logarithmic);

OR

Prerequisite

Placement is based on academic background or satisfactory completion of MATH 90.

Entry Standards

Entry Standards

No value

Specifications

Methods of Instruction

Methods of Instruction Lecture

Methods of Instruction Discussion

Methods of Instruction Tutorial

Methods of Instruction Collaborative Learning

Out of Class Assignments

- Homework (e.g. problem sets)
- Writing assignments that may include journals, projects, or papers (e.g. a written reflective journal detailing homework challenges)

Methods of Evaluation

Rationale

Exam/Quiz/Test

Quizzes

Exam/Quiz/Test

Three to five regularly scheduled exams are required

Exam/Quiz/Test

A comprehensive final examination is required

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Musser, Gary	Mathematics for Elementary Teachers	Hoboken: John Wiley	2014	978-1-118-45744-3

Other Instructional Materials (i.e. OER, handouts)

No Value

Learning Outcomes and Objectives

Course Objectives

Apply problem-solving techniques

Evaluate the equivalence of numeric algorithms and explain the advantages and disadvantages of equivalent algorithms in different circumstances

Apply algorithms from number theory to determine divisibility in a variety of settings

Analyze least common multiples and greatest common divisors and their role in standard algorithms

Define the natural, whole, integer, rational, irrational, and real number systems

Analyze the structure and properties of whole, rational, and real number systems; define the concept of rational and irrational numbers, including their decimal representation; and illustrate the use of a number line representation

Explain the concept of rational numbers, using both ratio and decimal representations; analyze the arithmetic algorithms for these two representations; and justify their equivalence

Develop activities implementing national and state curriculum standards, in particular common core standards

Identify properties and perform operations with different number systems and place value systems

Use basic number theory concepts to solve related problems

Use ratio, proportion, and percents

SLOs

Perform calculations in, and analyze properties of, various number systems using different algorithms.

Expected Outcome Performance: 70.0

Demonstrate conceptual understanding of mathematical topics through the use of patterns, problem solving, communication, connections, modeling, reasoning, and functions with their representations.

Expected Outcome Performance: 70.75

Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

Problem Solving (4)

- Polya's four-step process
- Problem Solving Strategies: modeling, patterns, connections, reasoning
- Representations: concrete/pictorial, abstract

Sets and Numeration Systems (8)

- Operations on sets, including union and intersection
- Historical numeration systems: Tally system, Egyptian, Roman, Babylonian, Mayan
- Hindu-Arabic numeration system
- Types of numeration systems: additive, subtractive, multiplicative, place-value

Operations of Whole Numbers (8)

- Basic Properties
- Ordering, including number line representation
- Approaches to arithmetic operations of whole numbers
- Computational algorithms
- Other bases

Number Theory (5)

- Primes, composites, divisibility rules
- Prime factorization and the Fundamental Theorem of Arithmetic
- Greatest Common Factor and Least Common Multiple

Rational Numbers (5)

- The set of fractions and basic properties
- Arithmetic operations with fractions
- Computational algorithms

Decimals, Ratio, and Percent (6)

- Fraction equivalents, order
- Arithmetic operations with decimals
- Ratio, proportion and percent
- Modeling percents

Integers (4)

- Structure and basic properties
- Order, absolute value
- Arithmetic operations and algorithms

Real Numbers (5)

- Structure and basic properties
- Rational and irrational numbers
- Arithmetic Operations
- The real number line

Introduction to Algebra (5)

- Representing and solving equations
- Relations and Functions
- Graphs of Functions

Curriculum Standards for Elementary School Math (4)

- National and state curriculum standards
- Common Core state standards

Total Hours=54