

Syllabus: Course Policies and Procedures

Contact Information

Instructor:

Office:

Email:

Phone:

Office Hours:

Course Information

Course: Mathematics for Elementary Teachers I

Course Number: MATH127-XX

Semester:

Classroom:

Day and Time:

Course Description

This course provides a conceptually based, comprehensive study of the mathematical content of numbers and their operations at the deep level required for successful elementary school teaching. Topics are examined in ways that are meaningful to pre-service elementary teachers. Topics include: place value and arithmetic models, mental math, algorithms, pre-algebra factors and prime numbers, fractions and decimals, ratio, percentage and rates, integers, and elementary number theory.

Required Text and Materials

1. Mathematics for Elementary Teachers, Bennett, Burton, & Nelson, 10th edition. ISBN 978-0-07-351957-9 With Manipulative Kit. McGraw-Hill publisher.

Course Topics

- Introductory Material
 - Mathematics, MTEL, & the Elementary School Teacher
 - Mathematics, MCAS, PACC & the Elementary School Student
 - Common Core & the Elementary School Teacher & Student.
- Chapter 3
 - Whole Numbers
 - Numeration Systems
 - Reading & Rounding Numbers
 - Models for Numeration
 - Whole number operation
 - Algorithms for Operations
 - Models for Operations

- Number Properties
 - Inequality of Whole Numbers
 - Mental Calculations
 - Estimations
 - Order of Operations
- Chapter 4
 - Number Theory
 - Factors & Multiples
 - Divisibility Tests
 - Divisibility Properties
 - Prime & Composite Numbers
 - Sieve of Eratosthenes
 - Greatest Common Factor
 - Least Common Multiple
 - Prime Factorization
 - Fundamental Solving & Reasoning
- Chapter 5
 - Integers & Fractions
 - Introduction to Integers
 - Operations on Integers
 - Uses for Integers
 - Models for Integers
 - Problem Solving & Reasoning
 - Fraction Terminology
 - Models for Fractions
 - Ratio Concept
 - Fundamental Rule for Equality of Fractions
 - Common Denominators
 - Addition & Subtraction of Fractions
 - Density of Fractions
 - Mixed Numbers & Improper Fractions
 - Multiplication & Division of Fractions
 - Problem Solving & Reasoning with Fractions
- Chapter 6
 - Decimal & Rational Numbers
 - Decimal Terminology
 - Models for Decimals
 - Equality of Decimals
 - Inequality of Decimals
 - Rational Numbers
 - Repeating Decimals

- Density of Rational Numbers
- Rounding Decimals
- Addition & Subtraction of Decimals
- Multiplication & Division of Decimals
- Problem Solving & Reasoning
- Ratio & Proportion
- Scientific Notation

Teaching Procedures

Each class will begin with a discussion of previously assigned homework problems. New material will be introduced using a variety of methods: lecture, discussion, activities, and use of the Manipulative Kit.

Instructional Objectives/Student Learning Outcomes

COURSE OUTCOMES	OUTCOMES ACTIVITIES
At the end of this course, students will be able to	
Apply the understanding of place value and the operations on whole numbers in order to facilitate the use of these operations in related topics and problem solving in mathematics.	1. Add, subtract, multiply, and divide whole numbers. (QS) 2. Demonstrate an understanding of place value by writing a given numeral in standard notation, expanded notation, and in words. (R,QS) 3. Round whole numbers to a given place value. (QS) 4. Find the prime factorization of a number and express it in exponential notation. (QS) 5. Simplify an expression using the order of operations agreement. (CT) 6. Solve related application problems. (R,QS,W,CT)
Apply the rules of integers and the order of operations agreement using integers in order to have the basic skills necessary to successfully complete this and future mathematics courses.	1. Add, subtract, multiply and divide signed numbers. (QS) 2. Demonstrate an understanding of absolute value by evaluating expressions in which it is used. (QS) 3. Simplify integer expressions according to the order of operations agreement. (QS,CT) 4. Solve related application problems. (R,QS,W,CT)
Apply the operations on rational numbers and mixed numerals in order to facilitate the use of these operations in related topics and problem solving in this and future math courses.	1. Add, subtract, multiply, and divide rational numbers and mixed numerals. (QS) 2. Use the Property of One and the fundamental properties of fractions to form equivalent fractions in higher and lower terms. (QS) 3. Simplify rational expressions according to the order of operations agreement. (QS,CT) 4. Simplify complex fractions. (QS,CT) 5. Solve related application problems. (R,QS,W,CT)

Understand the structure of a decimal number system and to apply the basic operations on decimals in order to facilitate the use of these operations in related topics and problem solving in this and other courses in mathematics.	1. Demonstrate the understanding of decimal place value by a. expressing a numeral in expanded notation, standard notation, and in words. (QS) b. rounding a decimal numeral to a given place value. (CT) c. comparing decimal numerals. (QS,CT) 2. Add, subtract, multiply, and divide decimal numerals. (QS) 3. Simplify decimal expressions according to the order of operations agreement. (QS,CT) 4. Convert fractions to their decimal equivalents. (QS,CT) 5. Convert terminating decimals to their fractional equivalents. (R,QS,W,CT)
Understand the concept of percent and its relationship to fractions and decimals in order to develop techniques to solve problems involving percent applications.	1. Convert among decimal fraction and percent notation. (CT,QS) 2. Solve the basic 3 types of percent equations. (CT,W,QS,R) 3. Solve real life application problems, such as simple interest and sales tax, percent increase and decrease, sales discount and commission. (W,R,CT,QS) Application problems to real life
Apply the concepts of ratio and proportion to solve problems that can be modeled by these types of relationships in this and future courses.	1. Write a ratio in its three forms. (QS,CT) 2. Find rate and unit rate. (QS,CT) 3. Solve proportions. (QS,CT) 4. Solving application problems using proportion. (W,R,QS,CT)
Use standard units of measurement to find the perimeter, area, and volume of geometric figures.	1. Use the appropriate formula to find perimeter, area and volume. (CT,QS) 2. Use the appropriate unit of measure and equivalent conversions where applicable. (CT,QS,R,W)
Solve simple linear equations in order to solve problems that can be modeled by these forms in this and future courses.	1. Use the addition principle to solve equations in the form $x + a = b$. (QS,CT) 2. Use the multiplication property to solve equations in the form $ax = b$. (QS,CT)

**Indicate the Core Competencies that apply to the outcomes activities and assessment tools: Critical Thinking (CT); technology skills (TS); oral communications (OC); quantitative skills (QS); reading (R); writing (W).

Basis for Student Grading

Grades for this course will be assigned as follows:

Grade	Average
A	93%-100%
A-	90%-92%
B+	87%-89%
B	83%-86%
B-	80%-82%
C+	77%-79%

Grade	Average
C	73%-76%
C-	70%-72%
D+	67%-69%
D	63%-66%
D-	60%-62%
F	0-59%

The grade you earn is the grade you will receive in this course. Grades are not negotiable. You will not be allowed to make up work, substitute alternative assignments, or submit extra assignments in order to improve your grade during the semester or after the semester ends.

Grades of incomplete are given only in situations when extenuating circumstances prevent a student from taking the final exam or fulfilling a specific requirement in the course. The grade of "I" cannot be used to give students additional time to complete course assignments in order to raise their grade.

Basis for Evaluating Student Performance

The grade for this course will be weighted based on the following categories:

- *Exams (70%)*: There will be four exams given during the semester, each worth 17.5% of your final grade.
- *Final Exam (20%)*: There will be a cumulative final exam given worth 20% of your final grade.
- *Class Participation and Discussion (10%)*: There is a related Math Activity with each section of chapters involving manipulative and/or discussion. A record of your participation will be recorded with attendance.

There is no extra credit available in this course.

Tentative Test Schedule/Assignment(s) Schedule

Assignment:	Tentative Date:
Test 1	
Test 2	
Test 3	
Test 4	
Final Exam	

Attendance Policy

Attendance will be taken each class. The student is expected to attend all classes. If the student misses a class, it is the student's responsibility to complete missed assignments.

Accommodations Statement

The Office of Access & Disability Resources (ADR) is committed to ensuring that students with disabilities have equal, effective, and meaningful access to all academic programs, community events, goods, and services provided by the College in compliance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Students with disabilities interested in establishing eligibility for services and/or academic accommodations will need to voluntarily disclose their disability to ADR, submit qualifying documentation and complete an ADR Intake meeting. During the meeting reasonable and appropriate academic accommodations will be determined. Visit the [Office of Access and Disability Services website](#) for more information and to begin the process to establish eligibility.

ADR uses a platform called Accommodate to manage the accommodation process. To make an initial accommodation request, please [submit a request through Accommodate to ADR](#).

Returning students with accommodations previously approved can request updated Accommodation Letters by accessing the ADR card in the MyMassasoit student portal. Log into Accommodate and click on Semester Request.

Students are expected to check in with faculty regarding approved accommodations. Communication between students, faculty, and ADR is key to successful accommodation implementation.

Students can contact ADR at 508-588-9100 x1807 or by email at adr@massasoit.mass.edu.