Massasoit Community College

Instructor:
Office:
Email:
Phone:
Office Hours:

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 & their operations at the deep level required for successful elementary school teaching. Topics will be examined in ways that are meaningful to elementary teachers. Topics discussed will include: place value & arithmetic models, mental math, algorithms, pre-algebra factors & prime numbers, fractions & decimals, ratios, percentage & rates, integers, and elementary number theory.

Prerequisite: D- or higher in Intermediate Algebra (MATH012) or waiver by placement testing results or Departmental Approval.

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

- o   Rounding Decimals
- o   Addition & Subtraction of Decimals
- o   Multiplication & Division of Decimals
- o   Problem Solving & Reasoning
- o   Ratio & Proportion
- o   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:

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	1. Demonstrate the understanding of decimal place value by

facilitate the use of these operations in related topics and problem solving in this and other courses in mathematics.	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 giving during the semester, each worth 17.5% of your final grade.
- *Final Exam (20%):* There will be a cumumlative 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: 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: Massasoit's Disability Services office provides accommodations to students who qualify for services based on a documented disability. Students interested in accessing classroom or testing accommodations must contact Disability Services directly. In an effort to avoid any lapse in services, new and returning students are encouraged to contact Disability Services at the beginning of each semester to receive an Accommodation Letter for the current semester. Students on all campuses can contact Disability Services at 508-588-9100 X 2132 or by e-mail at DisabilityServices@massasoit.edu for further information or questions.

 Title IX Statement: Massasoit Community College is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, stalking, or retaliation, we encourage you to report it to *Yolanda Dennis, Chief Diversity Officer and Title IX Coordinator, Office of Diversity and Inclusion, at 508-588-9100, x1309 or* ODI@massasoit.edu. While you may talk to a faculty member, understand that as a "responsible employee" of the College, the faculty member must report what you share to the College's Title IX Coordinator. On and off campus resources and interim measures are available to assist you. Information about both of these policies can be found at www.massasoit.edu/title-ix and www.massasoit.edu/eeo. We are here to support you.

Academic Integrity: Academic dishonesty will not be tolerated. Please see the following URL for more information on the college's policies on academic integrity:

http://www.massasoit.edu/academics/policies/academic-honesty/index