El Camino College

COURSE OUTLINE OF RECORD - Official

I. GENERAL COURSE INFORMATION

Subject and Number: Mathematics 17A
Descriptive Title: Math Academy: Arithmetic

Course Disciplines: Mathematics

Division: Mathematical Sciences

Catalog Description: This course is designed to develop student's number and operation sense working with whole numbers, fractions, decimals, and percents, as well as develop problem-solving skills. Topics include operations on whole numbers and decimals, estimations, ratios, proportions, applications, an introduction to variables, algebraic equations, and signed numbers.

Note: This course is designed for students who placed into Mathematics 12. This course is repeatable and open for enrollment at registration and at any time during the semester.

Conditions of Enrollment:

Prerequisite

qualification by testing (ElCamino College Mathematics Placement Test) and assessment

Recommended Preparation

Human Development 101
or concurrent enrollment

Course Length: ☐ Full Term ☑ Other (Specify number of weeks): 6
Hours Lecture: 7.00 hours per week ☐ TBA
Hours Laboratory: 1.00 hours per week ☐ TBA
Course Units: 0

Grading Method: No Grade
Credit Status Non Credit

Transfer CSU: ☐ No
Transfer UC: ☐ No

General Education:

El Camino College:

CSU GE:

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. **Application Problems:** Students will recognize addition, subtraction, multiplication, division, exponentiation, factoring and order of operations in a given context (word problem, data, diagram, etc.) involving real numbers, corresponding mathematical expressions and solve authentic, real-world application problems.
2. **Solving Equations and Manipulating Expressions:** Students will be able to use numerical and symbolic representations to correctly perform operations (addition, subtraction, multiplication, division, exponentiation, factoring, and order of operations) on real numbers in order to simplify expressions.
3. **Visual and Graphical Methods:** A student will use visual and graphical methods to represent and analyze information and to solve problems using real numbers, including demonstrating correct ordering of values and testing reasonableness of solutions.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at http://www.elcamino.edu/academics/slo/.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Use the order of operations to add, subtract, multiply, divide and exponentiate whole numbers, fractions and decimals.

   Objective Exams
2. Use rounding techniques to estimate results of operations on whole numbers, fractions and decimals.

   Quizzes
3. Use divisibility tests and prime factorization to reduce fractions to lowest terms and perform operations on fractions.

   Written homework
4. Convert rational numbers into decimals, fractions and percentages.

   Written homework
5. Solve various application problems requiring the use of ratios, proportions, and percentages.

   Class Performance
6. Formulate mathematical representations of real-world applications including the recognition of proportional relationships.

   Objective Exams
7. Formulate mathematical representations of real-world applications including the recognition of proportional relationships.

Class Performance

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	7	I	Whole numbers A. Operations on whole numbers (2) B. Order of operations (2) C. Rounding and estimation (1) D. Applications and solving(2)
Lecture	7	II	Integers A. Operations on integers (2) B. Order of operations (1) C. Ordering integers (2) D. Rounding and estimation (1) E. Applications and solving (1)
Lecture	16	III	Rational numbers A. Understanding and simplifying fractions (1) B. Operations on rational numbers (9) C. Ordering rational numbers (1) D. Order of operations (1) E. Rounding and estimation (1) F. Applications and solving (3)
Lecture	8	IV	Decimal numbers/ Ration and Proportion A. Operations on decimal numbers (2) B. Order of operations (1) C. Rounding and estimation (1) D. Ratio and Proportion (2) E. Applications and solving (2)
Lecture	4	V	Algebraic Expression and Equation A. Simplify and evaluate algebraic expressions using order of operations. Use the Distributive Property appropriately (2) B. Identify and simplify linear expressions. Solve linear equations (2)
Lab	6	VI	Operations & Applications for: A. Whole Numbers and Integers (2) B. Decimals (1) C. Fractions (2) D. Percents(1)
Total Lecture Hours		42	
Total Laboratory		6	

Hours	
Total Hours	48

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. **PRIMARY METHOD OF EVALUATION:**

Problem solving demonstrations (computational or non-computational)

B. **TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:**

Place the numbers in order from the smallest to largest. Write a sentence or two justifying your final ordering.

0.4, 1/2, 55/100, 0.49

C. **COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:**

1. A drapery panel measures 6 ft by 7 ft. Find how many square feet in material are needed for four panels? Explain your reasoning using sentences or pictures or both.
2. A work shift for an employee at Starbucks consists of 8 hours. What fraction of the employee's work shift is represented by 2 hours? Explain your reasoning using sentences or pictures or both.

D. **OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:**

Performance exams
Class Performance
Homework Problems
Completion

V. INSTRUCTIONAL METHODS

Demonstration
Discussion
Group Activities
Internet Presentation/Resources
Laboratory
Lecture

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Answer questions
Skill practice
Problem solving activities

Estimated Independent Study Hours per Week: 0

VII. TEXTS AND MATERIALS

A. **UP-TO-DATE REPRESENTATIVE TEXTBOOKS**

B. **ALTERNATIVE TEXTBOOKS**

C. **REQUIRED SUPPLEMENTARY READINGS**

D. **OTHER REQUIRED MATERIALS**
Two inches of three ring binder, one 120-page notebook, 8 color dividers, a pack of index cards, highlighters, pencils, and pens.

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Non-Course Prerequisite	This course is for students placed into Math 12. Testing will equip students with the information and tools necessary for success in the mathematical sequences of classes they take for graduation and transfer.

B. Requisite Skills

Requisite Skills

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
Course Recommended Preparation Human Development-101	

D. Recommended Skills

Recommended Skills
Develop educational goals. HDEV 101 - Assess and develop personal, educational, and professional goals. HDEV 101 - Evaluate the components necessary to create an individual educational plan.

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact

Course created by Malinni Roeun on 02/23/2015.

BOARD APPROVAL DATE: 01/20/2016

LAST BOARD APPROVAL DATE:

Last Reviewed and/or Revised by Malinni Roeun on 02/23/2015

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