Las Positas College
3000 Campus Hill Drive
Livermore, CA 94551-7650
(925) 424-1000
(925) 443-0742 (Fax)

Course Outline for MATH 72A

TECHNICAL ELEMENTARY ALGEBRA A

Effective: Fall 2018

I. CATALOG DESCRIPTION:
MATH 72A — TECHNICAL ELEMENTARY ALGEBRA A — 1.00 units

This course provides a survey of computational and elementary algebraic processes with an emphasis on applications in the automotive and welding trades. Topics covered include, but are not limited to: computations with real numbers, ratios, and proportions. This course cannot be used as a prerequisite for Math 50 Core Intermediate Algebra or Math 55 Intermediate Algebra.

1.00 Units Lecture

Grading Methods:
Letter or P/NP

Discipline:
- Mathematics

	MIN
Lecture Hours:	18.00
Expected Outside of Class Hours:	36.00
Total Hours:	54.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. Perform computations with whole numbers and fractions without using a calculator
B. Use a calculator to perform computations with integers, fractions and decimal numbers
C. Solve applied problems using ratios and proportions.

V. CONTENT:
- A. The Real Number System
  1. Add, subtract, multiply and divide, without using a calculator;
     a. whole numbers
     b. fractions and mixed numbers
  2. Decimal Numbers
     a. Place value and reading and writing decimal numbers
     b. Fraction/decimal conversions
  3. Using a calculator to add, subtract, multiply and divide:
     a. whole numbers
     b. fractions and mixed numbers
     c. decimal numbers
     d. signed numbers
  4. Real numbers
     a. Integer powers
     b. Square roots
     c. Calculations
     d. Order of operations
     e. Technical applications
- B. Ratios, rates, and proportions
  1. Writing, simplifying and interpreting ratios and rates
  2. Solving proportions
     a. Direct
     b. Indirect
  3. Solving similar triangles
  4. Technical applications

VI. METHODS OF INSTRUCTION:

A. **Classroom Activity** - Collaborative learning activities
B. **Lecture** -
C. **Audio-visual Activity** - web-based and/or videos embedded in an eText.
D. Homework
E. Assigned reading with questions to be answered in writing.

VII. TYPICAL ASSIGNMENTS:

A. Homework
1. Problems from the text should be assigned for each section covered. The number of problems assigned may vary from section to section and from instructor to instructor, but the homework assignments should include a sufficient number and variety of problems to develop both skill and conceptual understanding. A typical assignment should take an average student 1 to 2 hours for each hour in class.
2. The majority of the problems assigned should be those for which answers are readily available so that students may obtain immediate feedback on their work.
3. Homework assignments may include reading the text or viewing tutorial videos. An instructor may require written work in conjunction with such assignments (e.g., have students complete a Q & A sheet related to the assigned reading or tutorial).

B. Classroom Activity
1. Collaborative learning, done in small groups of 2-4 students, can be used to introduce new concepts, build skills, or teach problem solving.
2. Sample Collaborative learning assignment: Students create and solve problems using similar triangles by measuring the lengths of shadows of objects of various heights.

VIII. EVALUATION:

A. **Methods**
1. Exams/Tests
2. Quizzes
3. Class Work
4. Home Work

B. **Frequency**
1. Recommend a minimum of one exam plus the final
2. Homework should be assigned for each section covered
3. Number of quizzes and class work activities are at the discretion of the instructor

IX. TYPICAL TEXTS:

1. Carman, Robert, and Hal Saunders. *Mathematics for the Trades.* tenth ed., Pearson, 2015.
2. Ewan, Dale. *Elementary Technical Mathematics.* twelfth ed., Cengage, 2019.
3. Peterson, John, and Robert Smith. *Introductory Technical Mathematics.* seventh ed., Cengage, 2019.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. scientific calculator