MATH 85 - Elementary Algebra Course Outline

Approval Date: 02/13/2019
Effective Date: 08/12/2019

SECTION A

Unique ID Number	CCC000602586
Discipline(s)	Mathematics
Division	Mathematics
Subject Area	Mathematics
Subject Code	MATH
Course Number	85
Course Title	Elementary Algebra
TOP Code/SAM Code	1702.00 - Mathematics Skills / E - Non-Occupational
Rationale for adding this course to the curriculum	This course is intended for those students who want to pursue a STEM pathway, but who self-identify as not ready for the one-year-to-transfer path. This course is part of the re-write to math curriculum to adhere to AB705 and chancellor's office directives.
Units	4
Cross List	*N/A*
Typical Course Weeks	18

Total Instructional Hours

Contact Hours

Lecture 54.00

Lab 0.00

Activity 36.00

Work Experience 0.00

Outside of Class Hours 126.00

Total Contact Hours 90

Total Student Hours 216

Open Entry/Open Exit No

Maximum Enrollment 35

Grading Option Letter Grade or P/NP

Distance Education Mode of Instruction On-Campus

SECTION B
General Education Information:

SECTION C
Course Description

Repeatability May be repeated 0 times

Catalog Description This course is a review of basic mathematics, operations on real numbers, and algebraic expressions. It includes traditional arithmetic, pre-algebra and an introduction to algebra for students needing to develop or improve basic computational and quantitative reasoning skills. This course is recommended for students who wish to study business, science, technology, engineering or mathematics and need to learn foundational topics.

Schedule Description This course is a review of basic mathematics, operations on real numbers, and algebraic expressions. It includes traditional arithmetic, pre-algebra and an introduction to algebra for students needing to develop or improve basic computational and quantitative reasoning skills. This course is recommended for students who wish to study business, science, technology, engineering or mathematics and need to learn foundational topics.

SECTION D
Condition on Enrollment
1a. Prerequisite(s): *None*
1b. Corequisite(s): *None*
1c. Recommended: *None*
1d. Limitation on Enrollment: *None*

SECTION E
Course Outline Information
1. Student Learning Outcomes:
   A. Graph points in the Cartesian plane and linear equations.
   B. Solve simple equations.
   C. Perform arithmetic operations.
2. Course Objectives: Upon completion of this course, the student will be able to:
   A. Perform operations with real numbers, including decimals, fractions and absolute values;
   B. Use and solve ratios, proportions and percents;
   C. Solve linear equations and inequalities;
   D. Graph points and lines;
   E. Simplify algebraic expressions using the order of operations;
   F. Use exponents and simplify polynomials;
   G. Use geometric formulas for perimeter and area and;
   H. Study for a math class effectively.
   I.
3. Course Content
   A. Real numbers
        a. Addition

       b. Subtraction
       c. Multiplication
       d. Division
       e. Rounding
B. Decimals
       a. Addition
       b. Subtraction
       c. Multiplication
       d. Division
       e. Rounding
C. Fraction
       a. Addition
       b. Subtraction
       c. Multiplication
       d. Division
D. Percentages
       a. Ratios and proportions
       b. Converting between decimals, fractions, and percentages
       c. Finding percentages using ratios and translation
       d. Sales tax, tipping, and interest
E. Order of Operations
       a. Integer exponents
       b. Scientific notation
       c. Absolute values
       d. Simplifying expressions
F. Solving Equations
       a. Solving one and two step equations
       b. Contradictions and identities
G. Inequalities
       a. Solving
       b. Set builder notation
       c. Interval notation
       d. Graphing solutions
H. Cartesian graphing
       a. Axis and scale
       b. Potting points
       c. Graphing lines by plotting points
       d. Graphing lines with intercepts
       e. Slope
       f. Graphing lines with $y = mx + b$
       g. *H*orizontal and vertical lines and their slopes
I. Polynomials
       a. Definitions (term, coefficient, degree)
       b. Identifying monomials, binomials, and trinomials
       c. Combining like terms
       d. Simple adding and subtracting
       e. Simplifying monomials (reducing and integer exponents)
       f. Multiplying a polynomial by a monomial
       g. Factoring out greatest common factors
       h. Factor trinomials with $a = 1$
J. Geometry

       a. Perimeter (polygons and circles)
       b. Area of triangles, rectangles, and circles
       c. Angles in a triangle
  K. Study skills / affective domain (this should be integrated into the class, not taught as a separate section)
       a. Growth mindset and grit
       b. How to study for a math class
       c. Test taking strategies
       d. Campus resources
       e.

4. Methods of Instruction:

Activity:
Directed Study:
Lecture:
Projects:

5. Methods of Evaluation: Describe the general types of evaluations for this course and provide at least two, specific examples.

Typical classroom assessment techniques
  Exams/Tests --
  Quizzes --
  Projects --
  Home Work --
  Final Exam --
  Mid Term --

Additional assessment information:
  In face to face classes, it is recommended that one hour a week in the Math Success Center be assigned as a homework assignment worth 3 - 5% of the semester grade.

  The Mathematics Department maintains a commitment to diverse teaching methods in courses emphasizing vital quantitative skills and qualitative reasoning ability (PEP Program Mission Statement, 2011). To that end, it is expected that sufficient formative assessments will be given to students that in frequency, length and rigor adequately assess both quantitative skills and qualitative reasoning.

  Example questions:
  1. A calculator returns a value of 9.32475E-8. Write this value in decimal notation.

  2. Graph $y = (-2/3) x -3$

  Letter Grade or P/NP

6. Assignments: State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.
  A. Reading Assignments
    Read the section on slope before our next class period and be prepared to do an in class activity.
  B. Writing Assignments
    Example 1) Online or Paper Homework: Complete assigned exercises from the applicable section in the text.

Example 2) Group Activity: Graph the given ordered pairs. Find and graph the equation of the line through those points.
C. Other Assignments
D.

7. Required Materials

A. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.

Book #1:
Author: Bittinger, M, D. Ellenbogen, B. Johnson
Title: Prealgebra
Publisher: Pearson
Date of Publication: 2016
Edition: 7th

B. Other required materials/supplies.