

# West Los Angeles College

## SLO Addendum

Course Name and Number     MATH 115    

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Course Title     ELEMENTARY ALGEBRA    

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### Course Objectives (as stated in the Course Outline of Record)

1.
  - a. Identify the opposite and the absolute value of any rational number
  - b. Compare rational numbers using inequality notation
  - c. Perform arithmetic operations with rational numbers
  - d. Convert among percents, fractions, and decimals
  - e. Evaluate numerical expressions using order of operations
  - f. Identify sets and subsets of the real numbers.
  - g. Identify and use the properties of the real numbers
  
2.
  - a. Evaluate variable expressions
  - b. Identify like and unlike terms
  - c. Simplify variable expressions using properties of addition and multiplication and the distributive property
  - d. Translate a verbal expression into a variable expression, including applications
  - e. Use formulas to solve problems
  - f. Solve a literal equation for one of its variables
  
3.
  - a. Determine whether a given number is a solution to an equation
  - b. Solve general linear equations
  - c. Solve equations involving rates, ratios, and percents
  - d. Model and solve application problems using linear equations, including but not limited to:
    - i. Uniform motion problems
    - ii. Business applications
    - iii. Value and Percent mixture problems
    - iv. Geometry problems
    - v. Non-routine applications
  
4.
  - a. Construct a Cartesian coordinate system; identify and graph points
  - b. Construct and interpret scatter diagrams
  - c. Determine solutions of linear equations in two variables

- d. Graph linear equations in two variables given in standard or in function form
  - e. Find the slope of a straight line, given two points on the line or an equation of the line
  - f. Find an average rate of change and interpret slope as a rate of change
  - g. Graph a line given two points or one point and the slope
  - h. Find an equation for a line given two points or one point and the slope
  - i. Identify whether or not a relation is a function
  - j. Model applications using linear functions
  - k. Solve problems using linear functions
5.
    - a. Solve general linear inequalities in one variable
    - b. Graph solutions to linear inequalities on a number line
    - c. Graph linear inequalities in two variables.
    - d. Model and solve application problems using linear inequalities in two variables
6.
    - a. Solve systems of linear equations by graphing
    - b. Solve systems of linear equations using algebraic methods
    - c. Model and solve application problems using systems of two equations in two variables (including but not limited to rate-of-wind and water-current problems)
7.
    - a. Add and subtract polynomials
    - b. Multiply monomials and simplify powers of monomials
    - c. Multiply polynomials, including special products
    - d. Factor polynomials completely using common factors, grouping, and other techniques
    - e. Divide polynomials
    - f. Use scientific notation with positive and negative powers of ten
    - g. Solve polynomial equations by factoring.
    - h. Model and solve applications using polynomial equations and functions
8.
    - a. Multiply, divide, and simplify rational expressions
    - b. Find the LCM of two or more polynomials
    - c. Add and subtract rational expressions
    - d. Simplify complex rational expressions
    - e. Solve equations containing fractions
    - f. Set up and solve proportions in applied contexts including similar polygons
    - g. Use rational equations and functions to model and solve applications such as uniform motion and work problems
9.
    - a. Simplify numerical and variable radical expressions
    - b. Add, subtract, multiply and divide radical expressions
    - c. Solve equations containing one or more radical expressions

- d. Model and solve problems using radical equations and functions
10. a. Solve quadratic equations by factoring, taking square roots, completing the square, and using the quadratic formula
- b. Graph a quadratic function
  - c. Use quadratic equations and functions to model and solve application problems

## Math Program SLOs

1. Apply quantitative thinking processes using basic mathematical operations (addition, subtraction, multiplication, division) to solve common academic, workplace, and family problems. (Theme: Quantitative thinking; mathematical operations)
2. Analyze and interpret spatial and graphic data (schedules, maps, tables, graphs, and geometric figures). (Theme: spatial and graphic data).
3. Use mathematical tools essential for analyzing quantitative problems and for producing solutions. (Theme: mathematical tools)
4. Apply advanced mathematical concepts and tools (algebra, calculus) essential in upper division academic work and/or workplace tasks. (Theme: advanced mathematical operations—algebra, calculus)
5. Select appropriate math strategies for solving and handling application problems involving (for example) finance, science, economics, and family issues. (Theme: mathematical problem-solving)

<p align="center"><b><u>Course SLO</u></b></p> <p>One sentence that describes a major piece of knowledge, skill, or ability that students can demonstrate by the end of the course</p> <p><i>Finish the sentence, "At end of the course, the successful student will be able to... "</i></p>	<p align="center"><b><u>Assessment Method</u></b></p> <p>Major assignment, project or test used to demonstrate or apply outcome</p> <p><i>Remember to have a mix of qualitative and quantitative assessment methods.</i></p>	<p align="center"><b><u>Criterion Level</u></b></p> <p>Reflects satisfactory performance on the SLO</p> <ul style="list-style-type: none"> <li>• <i>At least X percent of students achieve this course SLO.</i></li> <li>• <i>All students achieve at least the Y level on this SLO.</i></li> <li>• <i>At least X percent of students achieve the Y level on this course SLO.</i></li> </ul>
<p>1. Construct, analyze, and interpret graphs of linear equations in two variables in theoretical and applied contexts</p>	<p>Students will answer multiple-choice questions embedded on a common final exam. A scantron scanner will be used to access the results for each of the relevant questions.</p>	<p>Each question will be answered correctly by at least 40 % of students.</p>
<p>2. analyze an application, determine the data and formula(s) required for solving the given application, write an equation(s), solve the equation(s), and write a statement of conclusion that summarizes the results using units of measure.</p>	<p>Students will answer multiple-choice questions embedded on a common final exam. A scantron scanner will be used to access the results for each of the relevant questions.</p> <p>Students will answer a set of constructed-response questions that may be embedded in an in-class exam or administered separately as an in- class activity</p>	<p>Each question on the final exam will be answered correctly by at least 30 % of students.</p> <p>At least 25% of students will achieve a level of at least 80% on the set of constructed-response questions. At least 50% of the students will achieve a level of at least 60% on the set of constructed- response questions .</p>
<p>3. Solve linear and quadratic equations in one variable, and solve equations containing algebraic fractions or square roots in one variable</p>	<p>Students will answer questions embedded on a common final exam. A scantron scanner will be used to access the results for each of the relevant questions.</p>	<p>Each question will be answered correctly by at least 40 % of students.</p>
<p>4.</p>		

## Mapping to Program SLO and Institutional SLOs

Please indicate with an "X" in the appropriate boxes below, the Course SLO mapping to the corresponding Program and Institutional SLO(s).

Course SLO	Program SLO												Institutional SLO									
	1	2	3	4	5	6	7	8	9	10	11	12	A	B	C	D	E	F	G	H	I	
#1	X	X	X										X		X			X				
#2	X		X		X								X	X	X							
#3	X		X	X									X		X			X				
#4																						

## Course SLO Acknowledgements

Draft prepared by Bonnie B lustein

\_\_\_\_\_  
 Division Chair  
 Matt Robertson

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 Date

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 Date

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 Curriculum Committee Chair  
 Judy Chow

\_\_\_\_\_  
 Date

\_\_\_\_\_  
 Academic Senate President  
 Adrienne Foster

\_\_\_\_\_  
 Date

\_\_\_\_\_  
 VP of Academic Affairs (initial) and College President

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 Date