

## Math 115– Elementary Algebra

West Los Angeles College

Section 4471 – Fall 2015

Class meets Tuesday and Thursday, from 4:30–7:00 p.m. in Room TBA.

<b>Instructor</b>	Prof. Nancy Foreman
<b>E-mail</b>	foremann@wlaac.edu
<b>Office hour</b>	Tuesday 3:30-4:20 p.m. in MSB 214, or by appointment
<b>Textbook</b>	<i>Beginning Algebra with Applications</i> , 7th ed., by Aufmann, Barker, and Lockwood
<b>Prerequisite</b>	Mathematics 110 or 112 with a grade of “C” or better, or appropriate placement level demonstrated through the mathematics assessment process.

**Course description** A first course in algebra covering basic operations with real numbers, polynomials, and rational and radical expressions; linear, quadratic, rational and radical equations; linear inequalities; systems of two linear equations; graphing and linear functions. Emphasis is placed on solving a variety of elementary application problems using mathematical modeling and symbol manipulation skills.

<b>Important dates</b>	First class meeting: Sept. 1
	Last day to drop without a “W”: Sept. 11
	Last day to drop with a “W”: Nov. 20
	<b>Final examination: Thursday, Dec. 17, 2015 from 4:30-7:00 p.m.</b>

<b>Evaluation is based on</b>	5 Tests, each worth 100 points	500 pts.
	In Class Work*/Homework	200 pts.
	Comprehensive Final Exam**	<u>300 pts.</u>
	Total	1000 pts.

\*In-Class Work may include, but is not limited to, quizzes, group work, and worksheets.

\*\*Departmental Common Final Exam taken by all Math 115 students at West.

<b>Grading scale</b>	900–1000 points: A
	800–899 points: B
	700–799 points: C
	600–699 points: D
	less than 599 points: F

**Calculators** Any type of dedicated scientific calculator may be used for all quizzes, tests, and homework, but no cell phones, computers, or other musical or Internet devices are permitted.

**Special circumstances** Students with disabilities or those who need accommodation for any reason must communicate with the instructor in a timely manner to ensure their needs are met. Any paperwork needed must be completed in advance. Contact Disabled Students Programs and Services located in SSB 320 (phone 310-287-4450).

**Homework** For full credit, homework papers must be given in order, neat and legible, necessary and sufficient work shown, with the section number of each book section written in the upper right hand corner of the page on which it is worked. If this is not done the homework will be returned to you ungraded. Submit homework on the corresponding exam day. Homework will be assigned for each section and each meeting can include some time to review homework questions. Homework will be collected and graded at each test. Late homework not accepted. Expect to study and work problems for at least 10 hours per week, or two hours study time for every classroom hour. A list of necessary reading and homework is included with this syllabus.

**Attendance & participation policy** Enrolled students must attend the first week of class, or risk being dropped. Every enrolled student is expected to attend every class, arriving on time and staying for the full class session. Attendance will be taken during each class; if roll call is missed, the student is marked absent. Students are expected to participate in all class activities, which may include worksheets, group work, or other activities. To avoid being dropped from class, students should contact the instructor (email [foremann@wlaac.edu](mailto:foremann@wlaac.edu)) when they must be absent for emergency reasons. If a student is absent more hours than the number of hours the class meets per week, and there are no mitigating circumstances which may justify the absences, the student may be excluded from the class. Students are encouraged to advise their instructor by email of anticipated absences. Note: if a student decides they cannot complete the class, it is the student's responsibility to drop (withdraw) on or before Nov. 11, 2015.

**Makeups, Late Work, Extra Help** Makeups are discouraged as students generally do less well. Any makeup exams must be given during instructor's office hour only. No more than one makeup exam will be administered. The final exam score may substitute for one missed exam. In class work cannot be made up. Any late work must be submitted by Dec. 17 (Final Exam) for partial credit (up to one-half the original point score). Plan to attend every class session. If you must miss a class, email [foremann@wlaac.edu](mailto:foremann@wlaac.edu) in advance. For extra help, you can look for an instructional video at [www.khanacademy.com](http://www.khanacademy.com) or on YouTube. If you can't figure it out on your own, consult a tutor or use the instructor's office hour to get help.

**Etiquette & Discipline** Please respect your classmates and the instructor, and refrain from disruptive behaviors such as coming late, leaving early, wandering in and out of class, eating or drinking during class, side conversations, instant messaging, websurfing, etc. Turn cell phone ringer off and do not use your phone during class. If you are in doubt, consider if your behavior is distracting or disruptive to others, or to yourself. If so, please stop. Let us maintain a civil atmosphere conducive to learning and thought. All college rules and regulations will be enforced; see the West Los Angeles College Catalog for more information. Student discipline rules are found at <https://www.laccd.edu/Board/Documents/BoardRules/Ch.IX-ArticleXI.pdf>. Cheating will not be tolerated. Maintain the highest standards of academic honesty. You may not give or receive help on tests or quizzes, and you may not turn in someone else's work as your own. If academic dishonesty is detected, a score of zero will be assigned, and the student(s) involved may be reported to the administration.

## **Homework and Reading List** (eoo means every other odd)

### **Homework Set 1** Due with Exam 1 on Sept. 17

Section 1.1 Read pp. 2-5, work Exercises 7-47 eoo, 53-77 eoo

Section 1.2 Read pp. 10-16, work Exercises 5-21 eoo, 35-53 eoo, 103-131 eoo

Section 1.3 Read pp. 24-31, work Exercises 3-15 odd, 19, 25, 37-55 eoo, 69-85 eoo, 97, 101, 119-127  
odd, 133, 141, 149

Section 1.4 Read pp. 38-41, work Exercises 5-17 odd, 23, 37-51 odd, 59

Section 1.5 Read pp. 44-50, work Exercises 7, 9, 17, 19, 27, 31, 33, 39, 45-53 odd, 57

Section 2.1 Read pp. 67-70, work Exercises 3, 7, 9, 15-25 odd, 33, 39-45 odd, 61

Section 2.2 Read pp. 74-80, work Exercises 31-61 eoo, 71-103 eoo, 111-135 eoo, 153, 161, 167

Section 2.3 Read pp. 86-90, work Exercises 17-27 odd, 39-43 odd, 49-57 odd, 63-87 eoo, 105-113 odd,  
121

Section 3.1 Read pp. 106-117, work Exercises 3, 7, 13, 21, 33-39 odd, 59-67 odd, 71, 81, 89-101 odd,  
111-135 eoo,, 147-153 odd, 163-171 odd, 181, 185, 211, 217, 219, 223

Section 3.2 Read pp. 129-136, work Exercises 5-53 eoo,, 73-81 odd, 95-123 every other odd, 129,  
149-161 eoo, 175, 177

Section 3.3 Read pp. 144-149, work Exercises 9-13 odd, 23-41 eoo,, 61-71 odd, 83, 87, 113, 125, 135

### **Homework Set 2** Due with Exam 2 on Oct. 1

Section 4.1 Read pp. 166-168, work Exercises 3-19 eoo, 31, 37-45 odd

Section 4.2 Read pp. 174-176, work Exercises 5-9 odd, 15, 29, 35-39 odd

Section 4.3 Read pp. 181-189, work Exercises 9, 11, 17, 21, 25, 27, 31, 33, 39, 43, 55, 71

Section 4.4 Read pp. 198-201, work Exercises 5, 9, 11, 19, 27, 31, 37, 39

Section 4.5 Read pp. 206-207, work Exercises 3, 5, 13, 17

Section 4.6 Read pp. 212-215, work Exercises 7, 13, 19, 23, 27, 31, 33, 41, 43

Section 4.7 Read pp. 222-224, work Exercises 5, 7, 13-19 odd

Section 4.8 Read pp. 228-229, work Exercises 5, 7, 11, 13, 19, 23

### **Homework Set 3** Due with Exam 3 on Oct. 15

Section 5.1 Read pp. 247-254, work Exercises 7-13 odd, 17, 21, 31

Section 5.2 Read pp. 261-269, work Exercises 3-9 odd, 17, 23, 29, 31, 41, 45, 65, 67, 75, 83-91 odd,  
101-107 odd

Section 5.3 Read pp. 276-283, work Exercises 5-17 odd, 29, 31, 41-47 odd

Section 5.4 Read pp. 288-292, work Exercises 3, 5, 9, 19, 21, 27-31 odd, 35-45 odd

Section 5.5 Read pp. 298-303, work Exercises 7, 11-15 odd, 19-23 odd, 31, 39-43 odd, 65

### **Homework Set 4** Due with Exam 4 on Nov. 3

Section 6.1 Read pp. 328-332, work Exercises 5, 7, 19-29 odd, 31, 35, 37, 41, 43

Section 6.2 Read pp. 337-339, work Exercises 3-15 odd, 25-31 odd, 45

Section 6.3 Read pp. 343-345, work Exercises 3-31 eoo

Section 6.4 Read pp. 348-353, work Exercises 3-9 odd, 19, 23, 29

Section 7.1 Read pp. 369-371, work Exercises 13-33 eoo, 39-55 eoo

Section 7.2 Read pp. 375-377, work Exercises 5-25 eoo, 43-73 eoo

Section 7.3 Read pp. 380-384, work Exercises 3-9 odd, 15-21 odd, 35-39 odd, 59-71 odd, 103-113 odd  
Section 7.4 Read pp. 391-396, work Exercises 1-79 even, 91, 97, 101, 103, 109, 111  
Section 7.5 Read pp. 402-404, work Exercises 3-15 odd, 37, 41

**Homework Set 5** Due with Exam 5 on Nov. 24

Section 8.1 Read pp. 418-421, work Exercises 5, 7, 13, 19, 23-33 odd, 45, 71, 77-85 odd, 103, 109, 111  
Section 8.2 Read pp. 425-428, work Exercises 5-13 odd, 23, 31, 47, 77-85 odd, 91, 99, 103  
Section 8.3 Read pp. 432-438, work Exercises 3, 5, 9, 17, 35, 37, 51, 55  
Section 8.4 Read pp. 443-446, work Exercises 7-19 odd, 33, 45, 73, 83, 97  
Section 8.5 Read pp. 450-453, work Exercises 5, 11, 15, 21, 25, 33, 37, 49, 51, 71, 75, 79, 83

Section 9.1 Read pp. 468-472, work Exercises 7-15 odd, 25, 27, 37, 39, 49, 55, 71, 73, 85, 87  
Section 9.2 Read pp. 479-481, work Exercises 3, 5, 7, 15, 21, 41, 45, 53  
Section 9.3 Read pp. 485-489, work Exercises 3, 11, 17, 27, 35, 47, 49, 53, 61, 69, 71  
Section 9.4 Read pp. 494-496, work Exercises 9, 19, 23, 25, 35, 41  
Section 9.5 Read pp. 499-506, work Exercises 11, 19, 25, 35, 43, 57, 59, 77, 81  
Section 9.6 Read pp. 516-517, work Exercises 1-13 odd  
Section 9.7 Read pp. 520-524, work Exercises 5, 7, 13, 19, 35, 39, 41, 43

**Homework Set 6** Due with Final Exam on Nov. 3

Section 10.1 Read pp. 542-546, work Exercises 9, 11, 15, 17, 23, 45, 47, 69, 61, 65, 77, 83, 95  
Section 10.2 Read pp. 551-552, work Exercises 3, 7, 15, 25, 45, 47, 51, 53  
Section 10.3 Read pp. 555-559, work Exercises 3, 5, 9, 13, 21, 23, 27, 31, 39, 41, 45, 51, 59, 67  
Section 10.4 Read pp. 563-567, work Exercises 5, 11, 13, 15, 21, 29, 35, 43, 49, 51, 59

Section 11.1 Read pp. 584-588, work Exercises 1, 3, 7, 9, 13, 19, 21, 23, 25, 31, 65, 67, 71, 75, 81  
Section 11.2 Read pp. 593-597, work Exercises 3, 5, 11, 15, 25, 33, 43, 61  
Section 11.3 Read pp. 600-603, work Exercises 5, 9, 19, 23, 41, 45, 51, 63

**Professor Foreman's education and experience** A.A. Liberal Studies w/Honors, Santa Monica College 1987. B.S. Mathematics, U.C.L.A. 1990. M.S. Mathematics, Northern Arizona University 1993, Thesis: *Graceful Trees and Graph Numberings*. Teaching Experience: Northern Arizona University, 1991-1993. Los Angeles Mission College, 1994-1998. West Los Angeles College, 1998–present. Santa Monica College, 2008–present.

**Course Objectives** Upon successful completion of this course, the student will be able to...

- 1a. 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
- 2a. 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
- 3a. 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
- 4a. 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
- 5a. 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
- 6a. 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)
- 7a. 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
- 8a. 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
- 9a. 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
- 10a. 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

**Proposed Class Schedule** (subject to change)

Week	Tuesday	Thursday
I	<b>Sept 1</b> Sec. 1.1, 1.2, 1.3 Integers and Operations, Rational numbers	<b>Sept 3</b> Sec. 1.4, 1.5, 2.1 Exponents, Order of Operations, Geometry, Variable Expressions
II	<b>Sept 8</b> Sec. 2.2, 2.3 Variable Expressions, Translation	<b>Sept 10</b> Sec. 3.1, 3.2 Linear Equations
III	<b>Sept 15</b> Sec. 3.3, Review	<b>Sept 17</b> <i>Exam 1</i> (covers Ch 1, 2, and 3), Sec. 4.1 Translation with equations
IV	<b>Sept 22</b> Sec. 4.2, 4.3 Integer, Coin, and Stamp problems; Geometry	<b>Sept 24</b> Sec. 4.4, 4.5, 4.6 Markup, Investment, Mixture problems
V	<b>Sept 29</b> Sec. 4.7, 4.8 Problems of motion, inequalities	<b>Oct 1</b> <i>Exam 2</i> (covers Ch 4), Sec. 5.1 Rectangular Coordinate System
VI	<b>Oct 6</b> Sec. 5.2, 5.3, Graphs of lines, Slope	<b>Oct 8</b> Sec. 5.4, 5.5 Equations of lines, Functions
VII	<b>Oct 13</b> Sec. 5.6, Linear inequalities, Review	<b>Oct 15</b> <i>Exam 3</i> (covers Ch 5), Sec. 6.1 Graphing systems of linear equations
VII I	<b>Oct 20</b> Sec. 6.2, 6.3 Solving systems of linear equations by substitution and elimination	<b>Oct 22</b> Sec. 6.4, 7.1 Applications in two variables, polynomial operations
IX	<b>Oct 27</b> Sec. 7.2, 7.3 Multiplication of monomials and polynomials	<b>Oct 29</b> Sec. 7.4, 7.5 Integer exponents, scientific notation, Polynomial division
X	<b>Nov 3</b> <i>Exam 4</i> (Covers Ch 6 and 7), Sec. 8.1 Greatest common factor	<b>Nov 5</b> Sec. 8.2, 8.3 Factoring trinomials
XI	<b>Nov 10</b> Sec. 8.4, 8.5 Factoring formulas, solving equations by factoring	<b>Nov 12</b> Sec. 9.1, 9.2 Operations on rational expressions, LCD
XII	<b>Nov 17</b> Sec. 9.3, 9.4 More operations on rational expressions, Complex fractions	<b>Nov 19</b> Sec. 9.5, 9.6 Equations with fractions, Literal equations
XII I	<b>Nov 24</b> <i>Exam 5</i> (Covers Ch 8 and 9), Sec. 9.7	<b>Nov 26</b> <i>Thanksgiving No class</i>
XI V	<b>Dec 1</b> Sec. 10.1, 10.2 Radicals and radical operations	<b>Dec 3</b> Sec. 10.3, 10.4 More on radicals, radical equations
XV	<b>Dec 8</b> Sec. 11.1, 11.2 Solution of quadratic equations by square roots and by completing the	<b>Dec 10</b> Sec. 11.3 The Quadratic Formula, begin review for final exam
XV I	<b>Dec 15</b> Review for Final Exam (Attendance optional, not a regular class day)	<b>Dec 17</b> <i>Final Examination</i> <b>4:30- 7 pm</b>