

LAGUARDIA COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
MATHEMATICS, ENGINEERING, and COMPUTER SCIENCE DEPARTMENT

MAT 96 – ELEMENTARY ALGEBRA

4 Lecture Hours, 1 Computer Lab Hour, 1 Tutoring Lab Hour, 0 Credits

Catalog Description

This course provides a careful treatment of elementary algebra, beginning with line/linear equations, ending with quadratic equations, and emphasizing the interplay between the algebraic and geometric points of view. Topics include line graphing, systems of linear equations, exponents, polynomial algebra, factoring, radical expressions, and the quadratic formula.

Instruction Objectives

During this course, the instructor expects to:

1. Provide the student with the skills necessary to construct graphs from linear equations and to deduce linear equations from graphs of straight lines.
2. Enable students to solve systems of linear equations graphically and algebraically and to appreciate the diverse applications involving such systems.
3. Introduce students with the concept of polynomial and evaluation of polynomials for given values of variables.
4. Reinforce students' understanding of the laws of exponents in the more general setting of signed numbers.
5. Provide students with the skills required to carry out arithmetic operations on polynomials and factoring.
6. Familiarize students with the algebra of radical expressions.
7. Enable students to solve quadratic equations by factoring, square root property and quadratic formula.

Performance Objectives

At the conclusion of this course, students will be able to:

1. Appreciate the interplay of algebra and geometry in drawing graphs of straight lines and deriving linear equations from straight line data.
2. Solve systems of linear equations pose in a variety of real-world settings.
3. Compute polynomials for given values of variables.
4. Use laws of exponents appropriately in various algebraic settings.
5. Perform arithmetic operations on polynomials, including factoring.
6. Combine and simplify radical expressions.
7. Solve quadratic equations by factoring polynomials, square root properties and the quadratic formula.

Required Textbook: *Elementary Algebra*. Senior Contributing Authors: Lynn Marecek, MaryAnne Anthony-Smith. OpenStax <https://openstax.org/details/books/elementary-algebra>.

Required Online Platform: <https://ohm.lumenlearning.com/> Course ID will be distributed by individual instructor.

Evaluation:

The purpose of a grading system is to give you, the student, and anyone else reading your transcript an accurate record of your performance in this course. The role of the Mathematics Department is to provide a fair, valid, and reliable structure for assessing your achievement. In order to pass this course, students must fulfill the **CUNY math proficiency requirements**: an overall course score of at least 70%.

Categories:

CUNY Final exam	35%
Two departmental exams	25%
Professor's tests/quizzes	10%
Final online pre-test	5%

Math Lab Work 5%

Homework 20%

Explanation of Grading Categories

1. **Final online pre-test**

This will be a cumulative online test assigned during the last week of classes.

2. **Professor's tests/quizzes**

Your professor will develop and administer two tests and several quizzes during the semester.

3. **Lab work**

You will meet with a tutor one hour every week and work on lab sheets containing problems that will enhance your computational skills. You are encouraged to work together and learn from each other.

Students are required to bring to the tutoring lab a copy of the relevant lab sheet. The lab sheets are available at: <https://www.laguardia.edu/MEC/Additional-Lab-Resources/>
The completed sheets must be submitted to your instructor.

4. **Departmental exams**

Two one-hour departmental online examinations, each consisting of 15 free-choice questions will be given online. The first exam will cover material from objectives 1 to 4 and the second departmental exam will cover material from objectives 1 to 7.

5. **CUNY Final Exam**

This exam will be given during the final examinations week. It will consist of 25 multiple-choice questions which must be completed for 100 minutes.

6. **Homework**

Homework is administered online and its total grade weight is 20%.

Attendance: The maximum number of absences allowed will be 9 hours. Unexcused absences beyond this maximum will result in a grade of WU or R.

Academic Integrity: This class will be conducted in compliance with LaGuardia Community College's academic integrity policy.

IN Grade: The Incomplete grade may be awarded to students who have not completed all of the required course work but for whom there is a reasonable expectation of satisfactory completion. A student who is otherwise in good standing in a course, defined as complying with the college attendance policy and maintaining a passing average, but who has not

completed at most two major assignments or examinations by the end of the course may request an IN grade. To be eligible a student must provide, before the instructor submits grades for the course, a documented reason, satisfactory to the instructor, for not having completed the assignments on time. (See catalog for more details).

IN ORDER TO PASS THIS COURSE, YOU MUST HAVE

- a) average total score (computed as stated above) of at least 70,**
- b) no more than 9 hours of unexcused absences,**
- c) completed all assignments and quizzes, tests, departmental exams, and all lab sheets.**

S/R/U grading system: The A/B/C/D/F grading scale is *not* used in MAT 96. LaGuardia's policy for grading in MAT 96 is as follows:

- ◆ If you meet the above evaluation criteria, you'll receive a passing grade of "S" (Satisfactory).
- ◆ If you don't meet the evaluation criteria, and you don't have any previous "R" grades in MAT 96, you'll receive an "R" grade, and you will have to repeat the course.
- ◆ If you don't meet the criteria, and you've already received one "R" grade in MAT 96, you'll receive another "R," and you will have to repeat the course.
- ◆ If you don't meet the evaluation criteria, and you've already received two or more "R" grades in MAT 96, you'll receive a "U" grade, and you will have to repeat the course.

Also, the College's policy concerning grades of W, WN, and WU apply to MAT 96.

NOTE: Using a scientific calculator will be allowed during the CUNY Final Exam.

COURSE OUTLINE FOR MAT96 Fall 2018

Note: The following syllabus is a guide for classroom instruction. It is subject to change based on the College's academic calendar.

Week	Lesson	TOPIC	Section on Textbook	Suggested Homework
1	1	Absolute value	1.3 Page 43	Homework on Absolute Values
	2	Order of operations with integers	1.2 Page 26 1.3 & 1.4	Homework on Integers & Order of Operations
	3	Evaluating algebraic expressions	1.2 Page 29	Homework on Algebraic Expressions
	4	Simplifying fractions	1.5 Page 79	Homework on Fractions
	5	Multiplication and division of fractions	1.5 Page 81	
2	6 -7	LCD; Adding and subtracting fractions	1.6 Page 92	Homework on Fractions
	8	Solving linear equations	2.1, 2.2 & 2.3	Homework on linear equations
	9	More on linear equations	2.4 & 2.5	
	10	Professor's Test 1		
		Lab Sheet # 1		
3	11	Translating phrases and sentences	1.2 Page 33	Homework on Translation
	12	Literal equations	2.6	Homework on Formula
	13	Linear inequalities	2.7	Homework on inequalities
	14-15	Rectangular coordinates and graphing equations in two variables	4.1 & 4.2	Homework on Graphing and Slope
		Lab Sheet # 2		
4	16	Slope of a line	4.4	Homework on Graphing and Slope
	17	Slope-intercept form of a line	4.5	
	18-19	An equation of a line	4.6	
	20	Review	10.5	
			Lab Sheet # 3	
	21	Departmental Exam 1		
5	22	Solving systems by graphing	5.1	Video Lesson-Solving by Graphing
	23	Solving systems by substitution	5.2	
	24-25	Solving systems by addition	5.3	
		Lab Sheet # 4		

6	26-29 30	Properties of exponents Polynomials-evaluating expressions	6.2	Homework on Exponents Polynomials-Evaluate
		Lab Sheet # 5		
7	31-32 33-34 35	Addition and subtraction of polynomials Multiplication of polynomials and special products Division of polynomials by monomials	6.1 6.3 & 6.4 6.5	Homework on Polynomials Video Lessons
		Lab Sheet # 6		
8	36 37-38 39-40	GCF and factoring by grouping Factoring monic trinomials Factoring trinomials: AC-method	7.1 7.2 7.3	Homework on Factoring Video Lessons
		Lab Sheet # 7		
9	41 42 43-45	Difference of squares and perfect square trinomials Solving equations by factoring Review	7.4 7.6 7.5	Homework on Solving by Factoring
		Lab Sheet # 8		
	45	Departmental Exam 2		
10	46 47 48 49	Introduction to square roots; simplifying roots Addition and subtraction of radicals Multiplication of radicals Division of radicals and rationalization	9.1 & 9.2 9.3 9.4 9.5	Homework--Radicals Video Lessons
		Lab Sheet # 9		
	50	Professor's Test 2		
11	51 52 53	The square root property The quadratic formula Review	10.1 10.3	Homework-Quadratic Equations
		Lab Sheet # 10		
12	54-59	Cumulative review for the CUNY Final Exam		
	60	Final Online Pre-test		