

BOROUGH OF MANHATTAN COMMUNITY COLLEGE

City University of New York

Department of Mathematics

Elementary Algebra

MAT 51

Semester:

Credits: 0

Class hours: 4

Instructor Information

Name:

Email:

Phone:

Office:

Course Description

This elementary algebra course includes topics such as arithmetic with integers, algebraic representation, operations with polynomials, linear equations, systems of two linear equations in two variables, exponents, radicals, factoring, and graphs of linear equations.

Pre-Requisites and placements:

ESL 62. Students are placed into this course based on their ACCUPLACER (or equivalent) score. Students who passed MAT 8 or the MAT 12 Pre-Algebra Assessment Exam can also be placed in this class.

Student Learning Outcomes and Assessment

Course Student Learning Outcomes	Measurements
1) Operations a. Radicals (only square roots of non-negative numbers) <i>i.</i> Simplify radicals (no variable in the radicand) <i>ii.</i> Perform addition, subtraction, multiplication and division using like and unlike radical terms and express the result in simplest form. b. Scientific Notation: Convert between standard decimal form and scientific notation. c. Exponents: Multiply and divide monomial expressions with a common base using the properties of exponents. d. Arithmetic with integers	Homework, quizzes, assignments, midterm, final exam, CUNY Elementary Algebra Final Exam(CEAFE)
2) Variables and Expressions a. Translate a quantitative verbal phrase into an algebraic expression. b. Add and subtract monomials and polynomials. c. Evaluate algebraic expressions by substitution. d. Multiplication of a monomial and binomial by any degree polynomial. e. Divide a polynomial by a monomial. f. Factoring <i>i.</i> Identify and factor the greatest common factor from an algebraic expression. <i>ii.</i> Identify and factor the difference of two perfect squares. <i>iii.</i> Factor all trinomials of a single variable, including a leading coefficient other than 1. <i>iv.</i> Factor algebraic expressions by grouping with up to 4 terms <i>v.</i> Factor algebraic expressions completely where factorization requires more than one step	Homework, quizzes, online problem assignments, midterm, final exam, CEAFE
3) Equations and Inequalities a. Translate sentences into mathematical expressions or equations. b. Solve linear equations in one variable. c. Systems of Linear Equations (2x2) <i>i.</i> Solve systems of two linear equations in two variables algebraically. <i>ii.</i> Solve systems of two linear equations in two variables graphically. d. Solve literal equations for a given variable.	Homework, quizzes, online problem assignments, midterm, final exam,

<p>e. Quadratic Equations:</p> <ul style="list-style-type: none"> <i>i.</i> Understand and apply the zero-factor property to solve quadratic equations with integer coefficients. <i>ii.</i> Solve quadratic equations. <i>iii.</i> Determine the measure of a third side of a right triangle using the Pythagorean Theorem, given the lengths of any two sides. <p>f. Linear inequalities in a single variable: Solve linear inequalities in one variable and represent the solution on a number line.</p>	CEAFE
<p>4) Coordinate Geometry</p> <p>a. Slope and equations of a line</p> <ul style="list-style-type: none"> <i>i.</i> Determine the slope of a line, given the coordinates of two points on the line. <i>ii.</i> Determine the slope of a line, given the line's graph. <i>iii.</i> Write the equation of a line, given its slope and the coordinates of a point on the line. <i>iv.</i> Write the equation of a line, given the coordinates of two points on the line. <i>v.</i> Write the equation of vertical or horizontal lines. <i>vi.</i> Determine the slope of a line, given its equation in any form. <i>vii.</i> Find the slope of any line parallel or perpendicular to a given line. <i>viii.</i> Write and transform equations of lines in the following forms: Point-Slope form, Slope Intercept form, $Ax + By = C$ form <p>b. Draw and recognize graphs of lines.</p>	Homework, quizzes, online problem assignments, midterm, final exam, CEAFE
<p>5) Proportions and percent</p> <ul style="list-style-type: none"> a. Solve simple verbal problem with two quantities that are proportional. b. Solve simple verbal problem involving a single percent including increase/decrease. 	Homework, quizzes, online problem assignments, midterm, final exam, CEAFE

General Education Outcomes and Assessment

General Education Learning Outcomes	Measurements
<p>Communication Skills- Students will be able to write, read, listen and speak critically and effectively.</p>	Homework, quizzes, online problem assignments, midterm, final exam, CEAFE
<p>Quantitative Reasoning- Students will be able to use quantitative skills and the concepts and methods of mathematics to solve problems.</p>	Homework, quizzes, online problem assignments, midterm, final exam, CEAFE
<p>Information & Technology Literacy- Students will be able to collect, evaluate and interpret information and effectively use WebAssign information technologies.</p>	Homework, quizzes, online problem assignments, midterm, final exam, CEAFE

Math Lab

The Math Lab is located in S535. You will need a valid BMCC student ID to visit the Math Lab. Tutors are available in the Math Lab for free to all BMCC students. The Math Lab has worksheets with practice problems in stock, as well as computer- and video-based tutoring.

Course Requirements

Text-Charles McKeague, *Elementary Algebra*, 9th edition, Cengage, and WebAssign's online homework access code.

For the reduced price, purchase only on the following online Cengage BMCC microsite. Copy the following URL exactly: <http://cengagebrain.com/micro/2010447MC>

Choose one of the following options:

1. **e-book with *WebAssign* access code** (for life-of-edition (LOE) of the textbook)
ISBN13: 978-1-337-76931-0..... \$55 (*Higher price of \$75 at the BMCC bookstore and the WebAssign website.*)
2. (Bundle) **Loose-leaf (not bound) Custom *Elementary Algebra*, 9th edition** textbook (includes e-book with *WebAssign* access code-for life-of-edition [LOE] of the text book)
ISBN13: 978-1-337-89492-0.....\$115.00 (*Higher price at the BMCC bookstore.*)

Use of Technology

- All students are required to use the **WebAssign** online courseware system. It contains videos, homework problems, chapter tests and quizzes, step-by-step help, an online version of the textbook, and more.
- Students can obtain the online courseware only by buying a **new textbook** that includes a student access card or by buying a **separate access code**.

Steps for signing on to WebAssign:

Step 1: Go to webassign.com or webassign.net then click "Enter Class Key" in the top right corner

Step 2: Enter the Class Key provided by your instructor which looks like this: EXAMPLE

Step 3: Verify your instructor & class information, then click "Yes, this is my class"

Step 4: If you have used WebAssign in the past, log-in with that information

-or-

If you have not used WebAssign in the past, click "Create Account" and enter your information. (Enter the a preferred email address that you use regularly (it does not have to be your BMCC email)

-or-

If you log-in and are prompted to link your WebAssign account click "Link your WebAssign Account" and enter that information

Step 5: After logging in you will be given an option to "Verify Payment". If you have already purchased access through the microsite provided by your instructor, (<http://cengagebrain.com/micro/2010447MC>) then click "Verify Payment."

If not, you can select "I'll do it later" and use the Courtesy Access period and purchase full access later. After the free grace period, you will not be able to continue without entering an Access Code.

Evaluation and Requirements of Students

The final course grade will be either a passing grade of S (satisfactory), or a non-passing grade of R (repeat).

To pass the course, students must have an overall course average of 70% or higher.

(See complete grade distribution below)

REQUIRED Grade Distribution

Midterm:	20 %
Departmental Final:	20 %
CUNY EXAM (CEAFE):	35 %
Homework and Quizzes:	25 %

If your score on the Midterm Exam is below 70%, you are required to complete the online WebAssign Intervention Assignments with a score of 70% or higher on each assignment. All other students are strongly encouraged to complete these intervention assignments for extra practice and/or course grade improvement.

College Attendance Policy

1. Absences

At BMCC, the maximum number of absences is limited to one more hour than the number of hours a class meets in one week. For this course, you are allowed five hours of absence (not five days). In the case of excessive absence, the instructor has the option of assigning an "R" grade. In the case where a student stops attending at any time, the instructor has the option of assigning a "WU" grade.

2. Lateness

Class begin promptly at the times indicated in the Schedule of Classes. Arrival in class after the scheduled starting time constitutes a lateness. Latecomers may, at the discretion of the instructor, incur an official absence.

3. Withdrawal from a course

Once classes begin, you must officially drop or withdraw from a course that you no longer want to attend before the deadlines (check the Academic Calendar for specific dates). *If you do not take action on the course, you will receive a grade of "WU or WN" (based on attendance), which counts as a failure in your GPA and may have financial repercussions. If you stop attending at any time during the term, you should receive a grade of WU.*

Academic Adjustments for Students with Disabilities

Students with disabilities who require reasonable accommodations or academic adjustments for this course must contact the Office of Accessibility. BMCC is committed to providing equal access to all programs and curricula to all students.

Single Stop

The Single Stop Office provides services and resources to help students address barriers that prevent them from attending and completing school. They offer one-stop help with finances, housing, health insurance and more.

BMCC Policy on Plagiarism and Academic Integrity Statement

Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's web site, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).

Week 1	Chapter 1 The Basics 1.1 Variables, Notation, and Symbols 1.2 Real Numbers 1.3 Addition and Subtraction of Real Numbers 1.4 Multiplication of Real Numbers 1.5 Division of Real Numbers	Week 8	Chapter 5 Exponents and Polynomials 5.1 Multiplication with Exponents 5.2 Division with Exponents (scientific notation) 5.3 Operations with Monomials 5.4 Addition and Subtraction of Polynomials
Week 2	1.6 Properties of Real Numbers 1.7 Subsets of Real Numbers 1.8 Addition and Subtraction of Fractions with Variables Chapter 2 Linear Equations and Inequalities 2.1 Simplifying Expressions 2.2 Addition Property of Equality	Week 9	5.5 Multiplication with Polynomials 5.6 Binomial Squares and Other Special Products 5.7 Dividing a Polynomial by a Monomial Chapter 6 Factoring 6.1 The GCF and Factoring by Grouping
Week 3	2.3 Multiplication Property of Equality 2.4 Solving Linear Equations (including rational equations from supplemental material) (Supplemental Material on WebAssign) 2.5 Formulas 2.6 Applications Proportions and Percents (Supplemental material on WebAssign)	Week 10	6.2 Factoring Trinomials 6.3 More Trinomials to Factor 6.4 The Difference of Two Squares
Week 4	2.7 More Applications 2.8 Linear Inequalities Chapter 3 Linear Equations and Inequalities in Two Variables 3.1 Paired Data and Graphing Ordered Pairs 3.2 Solutions to Linear Equations in Two Variables	Week 11	6.6 Factoring: A General Review 6.7 Solving Equations by Factoring 7.1 Simplifying Rational Expressions Chapter 8 Square Roots 8.1 Definitions and Common Roots
Week 5	3.3 Graphing Linear Equations in Two Variables 3.4 More on Graphing: Intercepts 3.5 The Slope of a Line 3.6 Finding the Equation of a Line	Week 12	8.2 Properties of Radicals 8.3, 8.4 Operations with Radicals Pythagorean Theorem (Supplemental Material on WebAssign)
Week 6	Chapter 4 Systems of Linear Equations 4.1 Solving Linear Equations by Graphing 4.2 The Elimination Method 4.3 The Substitution Method 4.4 Applications	Week 13	Review for Final Exam Department Final Exam (13 th or 14 th week)
Week 7	Review for Midterm Exam Departmental Midterm Exam: Signed Numbers, Algebraic Expressions and Exponents, Solving and Graphing Linear Equations/Inequalities, Systems of Linear Equations	Week 14	Department Final Exam Review for the CUNY-Wide Math EXAM (CEAFE)
		Week 15	MATH CUNY-Wide EXAM (CEAFE)

Suggested
Schedule