

BOROUGH OF MANHATTAN COMMUNITY COLLEGE

City University of New York

Department of Mathematics

Basic Arithmetic and Algebra

MAT 12

Semester:

Credits: 0

Class hours: 6

Instructor Information

Name:

Email:

Phone:

Office:

Course Description

This course is a combination of remedial arithmetic skills and elementary algebra. It includes the arithmetic of integers, fractions, decimals, and per cents. In addition, the course covers topics such as algebraic representation, operations with polynomials, solving linear equations, solving systems of two linear equations in two variables, exponents and radicals, factoring, and graphing linear equations. This is an accelerated course for students who have scored relatively high on the placement examination in pre-algebra.

Pre-Requisites

Pre-Requisite: ESL 62. Students will be placed based on their ACCUPLACER'S (or equivalent) scores in this class.

Student Learning Outcomes and Assessment

Course Student Learning Outcomes	Measurements
1. Students should be able to correctly compute a variety of operations involving real numbers in a number of different formats, including the correct usage of the order of operations.	1. Homework, quizzes, online problem assignments, PAAE, final exam, CUNY-Wide MATH Exam (CEAFE).
2. Students should be able to correctly convert between a variety of real number types and formats.	2. Homework, quizzes, online problem assignments, PAAE, final exam, CEAF Exam
3. Students should be able to make estimates and to check the reasonableness of solutions to calculations and problems involving real numbers.	3. Homework, quizzes, online problem assignments, PAAE, final exam, CEAF Exam.
4. Students should be able to solve applied word problems, including correctly setting up problems and translating between words and algebraic expressions and equations.	4. Homework, quizzes, online problem assignments, PAAE, final exam, CEAF Exam.
5. Students should be able to perform operations and solve equations involving algebraic expressions in the real numbers, including polynomial, rational, and radical expressions and equations, linear inequalities and systems of equations.	5. Homework, quizzes, online problem assignments, PAAE, final exam, CEAF Exam.
6. Students should be able to represent equations in the real numbers graphically, and translate between graphical and algebraic forms, and use both graphical and algebraic forms to solve problems.	6. Homework, quizzes, online problem assignments, PAAE, final exam, CEAF Exam.

General Education Outcomes and Assessment

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

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, as well as computer- and video-based tutoring.

Course Requirements**Text and Readings:**

- 1) Geoffrey Akst and Sadie Bragg, *Basic Arithmetic and Algebra, Fourth Custom Edition, book package with MyMathLab access code*, Pearson Custom Publishing, 2012 ISBN # 9781269903530.

OR 2) Stand-alone MyMathLab access code with eBook (Code: 9781269899734).

Technology: All students are required to use the **MyMathLab** 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 access the online courseware only by buying a **new textbook** that contains a student access card or by buying a **separate access code** from the bookstore or the publisher. **MyMathLab** can be accessed on any computer that has internet access.

Registering for MyMathLab: Before registering, you will need the following information:

- E-mail address: Your professor will communicate with you via this address.
- Course ID: Your course ID will be given to you by your instructor.
- Access Code: The required access code comes either with your book or by itself at your bookstore. Alternatively, you can buy instant access with a credit card or PayPal account during registration.

Once you have this information, you may register by following the directions below:

1. Go to www.pearsonmylabandmastering.com.
2. Under the large **Register** section on the right side of the page, and click the **Student** button.
3. Read the onscreen instructions and click **OK! Register now**.
4. Next, enter the **Course ID** for your course.
5. After this, either **Create** a new Pearson username and password, or, if you've already registered for another Pearson product (i.e. MyStatLab), **Sign In** with that username and password.
6. On the next page, click the **Access Code** button if you purchased a package with an access code from the bookstore, OR purchase instant access now by clicking on the purchase options under the **Use a Credit Card or PayPal** section.
7. You are now registered! Now, it's time to sign. Go to www.pearsonmylabandmastering.com and click the **Sign In** button in the top right. Enter your username and password.

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). (See complete grade distribution table below).

REQUIRED Grade Distribution:

PAAE:	20 %	Departmental Final:	20 %
CUNY Exam (CEAFE):	35 %	Homework and Quizzes:	25 %

- **To pass the course, you must have an overall course average of 70% or higher.**
- A passing grade for the Departmental Pre-Algebra Assessment Exam (PAAE) is 70% or higher.
- If your score on the first try of the PAAE Exam is below 70%, you are required to complete each of the online Intervention Assignments (on **MyMathLab**) with a score of 70% or higher on each. All other students are strongly encouraged to complete these intervention assignments for extra practice and/or course grade improvement.
- If your score on the first try of the PAAE is below 70%, a second try of PAAE Exam will be given to you during Finals Week.

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 seven hours of absence (not seven 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

Classes begin promptly at the times indicated in the Schedule of Classes. Arrival in classes 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.*

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).

Suggested Schedule

Week 1	Arithmetic of Whole Numbers	Week 8	Graphing Linear Equations and Inequalities
Week 2	Fractions	Week 9	Solving Systems of Linear Equations
Week 3	Decimals	Week 10	Exponents and Polynomials (includes scientific notation)
Week 4	Percent	Week 11	Factoring Polynomials
Week 5	Basic Statistics, Signed Numbers	Week 12	Rational Expressions
Week 6	Exponents, Scientific Notation Departmental Pre-Algebra Assessment Exam(PAAE): Whole Numbers, Fractions, Decimals, Percents, Basic Statistics, Signed Numbers and Scientific Notation	Week 13	Radical Expressions
Week 7	Algebraic Expressions, Translations. Solving Linear Equations and Inequalities	Week 14	Department Final Exam; Exam review
		Week 15	CUNY-Wide Exam (CEAFE) and second try of PAAE

Outline of Topics

Arithmetic of Whole Numbers

- Writing, rounding, adding, subtracting, multiplying, and dividing whole numbers.
- Estimating the sum, difference, products and quotients of whole numbers.
- Problems involving exponents, simple averages, and order of operations.
- Prime factorizations of whole numbers.
- Applied problems and word problems.

Fractions

- Forming, reducing, adding, subtracting, multiplying, dividing and comparing fractions.
- Converting between mixed numbers and improper fractions.
- Solving applied problems and word problems.

Decimals

- Writing, rounding, adding, subtracting, multiplying, dividing and comparing decimals.
- Converting between decimals and fractions.
- Solve applied problems and word problems.

Percents

- Writing and simplifying ratios and rates as fractions.
- Finding units rates and best buys.
- Setting up and solving proportion problems.
- Solving applied problems and word problems.
- Converting between decimals, percent and fractions.
- Solving percent problems, including application

Basic Statistics

- Finding the mean median, mode, and range of a given set of numbers.
- Reading and interpreting tables, line graphs, bar graphs and pie charts.
- Solving applied problems and word problems involving basic statistics and bar graphs.

Signed numbers (2nd section)

- Adding, subtracting, multiplying, dividing and comparing signed numbers.
- Determining absolute value.
- Completing word problems involving signed numbers.

Algebraic Expressions, Translations and Exponents

- Evaluating algebraic expressions via substitution.
- Adding, subtracting, multiplying, dividing and simplifying algebraic expressions.
- Using algebraic expressions to solve applied problems.

Scientific Notation (supplemental worksheet)

- Converting numbers between standard form and scientific notation.
- Solving applied problems and word problems.

Solving Linear Equations and Inequalities

- Solving linear and literal equations.
- Defining a linear equation in x and y using given information.
- Solving applied problems using linear equations in one variable.

Graphing Linear Equations and Inequalities

- Graphing the solution set of a linear inequality.
- Plotting points in the x-y plane.
- Graphing linear equations.
- Finding the slope of a line from given information.

Solving Systems of Linear Equations

- Solving systems of linear equations in 2 variables using graphical, substitution and elimination methods.
- Solving applied problems involving systems of equations.

Exponents and Polynomials

- Multiplying, dividing and simplifying expressions involving exponents.
- Adding, subtracting, multiplying, dividing and evaluating polynomials.

Factoring Polynomials

- Factoring polynomials using the greatest common factor and grouping.
- Factoring trinomials and difference of squares.
- Solving quadratic equations in one variable by factoring.
- Solving applied problems involving factoring.

Rational Expressions and Equations

- Simplifying rational expressions.
- Solving rational equations.

Radical Expressions and Equations

- Simplifying, adding, subtracting, multiplying and dividing radical expressions.