

**BOROUGH OF MANHATTAN COMMUNITY COLLEGE**

City University of New York

**Department of Mathematics**

**Elementary and Intermediate Algebra with  
Trigonometry**

**MAT 56.5**

**Semester:**

**Credits: 0**

**Class hours: 7**

**Instructor Information:**

**Name:**

**Email:**

**Phone:**

**Office:**

**Course Description:**

This course is a combination of elementary algebra and intermediate algebra including trigonometry. It includes such topics as properties of real numbers, polynomials and factoring, equations and inequalities in one and two variables, systems of linear equations and inequalities, rational expressions and functions, rational exponents and roots, quadratic functions, exponential and logarithmic functions, and an introduction to trigonometry. This course is recommended for eligible students that wish to take a one-semester accelerated path to MAT 206.

**Pre/Co-Requisites:**

Pre-Requisite: ESL 062.

Students must have passed MAT 8 or been exempt by score on college placement test.

Students must not have passed or been exempt from MAT 12, or MAT 51, or MAT 56.

**Student Learning Outcomes and Assessment:**

<b>Course Student Learning Outcomes</b>	<b>Measurements</b>
<b>1. Variables and Expressions</b> Students should be able to solve applied word problems, including correctly setting up problems and translating between words and algebraic expressions and equations.	<b>1.</b> Homework, quizzes, online problem assignments, midterm, final exam.
<b>2. Equations and Inequalities</b> Students should be able to perform operations and solve equations involving algebraic and transcendental expressions in the real numbers, including polynomial, rational, radical, exponential, logarithmic and trigonometric expressions and equations, linear inequalities, systems of equations.	<b>2.</b> Homework, quizzes, online problem assignments, midterm, final exam.
<b>3. Coordinate Geometry</b> 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.	<b>3.</b> Homework, quizzes, online problem assignments, midterm, final exam.
<b>4. Functions and functional notation.</b> a. Use function notation to compute a single output for simple linear and quadratic relationships. b. Use function notation to generate a table of values.	<b>4.</b> Homework, quizzes, online problem assignments, midterm, final exam, <b>MATH CUNY-Wide EXAM</b>
<b>5. Proportions and percent</b> a. Solve simple verbal problem with two quantities that are proportional.	<b>5.)</b> Homework, quizzes, online problem assignments, midterm,

b. Solve simple verbal problem involving a single percent and/or a single percent increase/decrease.	final exam, <b>MATH CUNY-Wide EXAM</b>
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**General Education Outcomes and Assessment:**

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

**Course Requirements**

1. **Textbook:** Charles Mckeague, *Algebra with Trigonometry for College Students, 5<sup>th</sup> edition.* Cengage, 2002\* or in **e-book form\*** (Note: For access to the e-book, you must obtain a **class key** from your instructor)

*\*For a reduced price, purchase the following through the online Cengage BMCC microsite.*

Copy the following URL exactly: **HTTP://WWW.CENGAGEBRAIN.COM/MICRO/BMCCMAT**

- Bundle: (includes textbook, ebook,and Enhanced WebAssign): ISBN13:978-1-133-84531-7.. \$95
- E-book (includes Enhanced WebAssign): ISBN13: 978-1-285-85831-9.....\$55

**Check with your instructor *before* purchasing to see which option is correct for your class.**

2. **Technology:** A scientific calculator is required. A TI-30X is recommended. Graphing calculators and cell phone calculators are not allowed.

**Math Lab Use:** The Math Lab is located in S535. It is dedicated to helping students improve their understanding of mathematics at any level. 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. Your instructor can require you to attend to tutoring in the Math Lab and they can also track how often you visit it and for how long. The Math Lab is typically open any day of the week when BMCC has classes in session; for current hours and more information about the Math Lab, see the webpage at <http://www.bmcc.cuny.edu/mathlab/>.

**Additional Resources:** Practice departmental final exams can be found at [http://www.bmcc.cuny.edu/math/instructional\\_materials.jsp](http://www.bmcc.cuny.edu/math/instructional_materials.jsp)

**Evaluation and Requirements of Students**

**Three Exams are required**

<b>CEAFE CUNY Math Exam</b>	<b>20%</b>
<b>Midterm Exam (by Instructor)</b>	<b>20%</b>
<b>Final Exam (Departmental)</b>	<b>30%</b>
Homework, Quizzes, or Projects (by Instructor)	30%

If a student fails the departmental final; but scores at least 68 on the CEAFE, that student places into MAT 056. Students that do not pass the CEAFE can retake the exam 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 a “WU” or “R” grade.

**2. Class Attendance**

- Attendance in both regular and remedial courses is mandated by policy of the City University of New York.
- 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).

**3. 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.

**Academic Adjustments for Students with Disabilities:**

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

**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 of 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](http://www.bmcc.cuny.edu). For further information on integrity and behavior, please consult the college bulletin (also available online).

**Approximate Schedule**

**Chapter (see sections covered on following pages)**

7-hr blocks	Name of Section in Textbook	Suggested Assignments (Due next class lecture)	Readings for this week
<b>Week 1</b>	Variables, Notation, and Symbols (R.1)	Pg. 12 # 2 – 20 even; 12, 16, 20, 24, 28, 32, 36, 43, 62, 64, 66, 76 - 86 even	Pages 3 – 11
	Real Numbers (R.2)	Pgs. 24 - 27 # 2 - 12 even; 22, 24, 26, 30 - 40 even; 54 - 60 even; supplemental worksheet for combining like terms; 74 - 80 even; 94 - 104 even	Pages 16 - 23
	Arithmetic with Real Numbers (R.3)	Pgs. 35 -37 # 2 - 12 even; 26 - 34 even, 42 -50 even; supplemental worksheet for division of integers	Pages 27 - 32
	Simplifying Expressions (R.3)	Pgs. 36 - 38 # 66 - 74 even; 100	Pages 33 - 34
	Addition Property of Equality (1.1)	Supplemental worksheet	Page 101
	Multiplication Property of Equality (1.1)	Supplemental worksheet	Page 101
	Solving Linear Equations (1.1)	Pgs. 110 - 111 # 2 - 22 even; 68 - 72 even	Pages 101 - 106
<b>Week 2</b>	Formulas (1.2)	Pgs. 122 - 125 # 4, 6, 10, 20 - 36 even; 75, 76	Pages 112 - 122
	Applications (1.3)	Pgs. 137 - 142 # 2, 6, 12, 30, 44	Pages 126 - 136
	Linear Inequalities (1.4) Graphing	Pgs. 151 - 153 # 8 - 26 even; 34, 42	Pages 143 - 150
	Ordered Pairs (2.1) Solutions to	Pgs. 188 - 191 # 2, 4	Pages 178 - 187
	Linear Equations in Two Variables (2.1)	Supplemental worksheet	Supplement
	Graphing Linear Equations (2.1)	Pgs. 188 - 191 # 20; 30; 36; 42; 44	Pages 178 - 187
	Graphing Using Intercepts (2.1)	Pgs. 188 - 191 # 6 - 18 even	Pages 178 - 187
	The Slope of a Line (2.2)	Pgs. 198 - 202 # 2 - 16 even; 36 - 40 even; 59	Pages 192 - 197
	Equation of a Line (2.3)	Pgs. 210 - 214 # 2 - 34 every other even; 36; 44; 46 - 50 even	Pages 202 - 210

<b>Week 3</b>	Solving Systems of Equations by Graphing (3.1)	Pg. 286 # 2 - 8 even	Page 276	
	Solving Systems of Equations Using the Substitution Method (3.1)	Pgs. 286 - 287 # 26 - 24 even	Pages 276 - 285	
	Solving Systems of Equations Using the Elimination Method (3.1)	Pgs. 286 - 287 # 10 - 20 even	Pages 276 - 285	
	Applications (3.5)	Pgs. 323 - 326 # 2, 8, 16, 25, 26	Pages 312 - 323	
	Multiplication with Exponents (R.4)	Pgs. 46 - 48 # 2, 3, 13 - 20	Pages 38 - 46	
	Division with Exponents (R.4)	Pgs. 46 - 48 # 22 - 30 even; 42 - 50 even	Pages 38 - 46	
	Operations with Monomials (R.4)	Pgs. 46 - 48 # 32, 34, 38, 52, 54 - 62 even; 64, 70, 74, 78, 80, 82, 84	Pages 38 - 46	
	Addition and Subtraction of Polynomials (R.5)	Pgs. 58 - 60 # 2, 12, 14 - 20 even, 26	Pages 49 - 57	
		Multiplication with Polynomials (R.5)	Pgs. 58 - 60 # 42 - 50 even; 54 - 60 even	Pages 49 - 57
		Binomial Squares and Other Special Products (R.5)	Pgs. 58 - 60 # 64 - 72 even; 76; 84, 98	
<b>Week 4</b>	Dividing a Polynomial by a Monomial (4.2)	Pg. 369 # 2 - 12 even	Pgs. 360 - 361	
	The GCF and Factoring By Grouping (R.6)	Pgs. 67 - 69 # 2 - 18 even; 19 - 25	Pages 61 - 62	
	Factoring Trinomials (R.6)	Pgs. 67 - 69 # 28 - 44 even	Pages 62 - 63	
	More Factoring of Trinomials (R.6)	Pgs. 67 - 69 # 46 - 70 every other even	Pages 63 - 67	
	Special Factoring (R.7)	Pgs. 77 - 79 # 2 - 6 even; 16 - 24 even	Pages 70 - 77	
<b>Week 5</b>	Factoring: Review (6.6)	Pgs. 77 - 79 # 48 - 66 even	Pages 61 - 67, 70 - 77	
	Solving Equations by Factoring (6.7)	Pgs. 110 - 111 # 24 - 32 even; 34, 52, 54	Pages 101 - 106	
	Simplified Form for Radicals (5.3 )	Pgs 453-456 #: 26, 42, 48, 51, 64, 76	Pages 445 - 453	
	Pythagorean Theorem	Supplemental worksheet	Page 133 (and supplement)	
	Addition and Subtraction of Radical Expressions (5.4)	Pgs 459-461 #: 6, 10, 16, 22, 36	Pages 457 - 459	

	Multiplication and Division of Radical Expressions (5.5)	Pgs 466-468 #: 2, 4, 10, 12, 18, 22, 30, 40	Pages 461 – 466
	<b>REVIEW FOR CEAFE EXAM (COMPUTERIZED)</b>		
<b>Week 6</b>	Equations with Absolute Value (1.1)	Pgs 157-159 #: 1, 8, 11, 13, 29, 41, 49, 52	Pages 153 – 157
	Inequalities Involving Absolute Value (1.6)		
	Basic Properties and Reducing to Lowest Terms (4.1)	Pgs 355-360 #: 4, 8, 10, 12, 16, 22, 28, 46, 48, 58	Pages 347 – 355
	Division of Polynomials (4.2)	Pgs 369-371 # 16, 22, 32, 38, 42, 58	Pages 360 – 368
<b>Week 7</b>	Multiplication/ Division of Rational Expressions (4.3)	Pgs 377-379 #: 8, 16, 18, 30, 32, 36, 46	Pages 371 – 376
	Addition/ Subtraction of Rational Expressions (4.4)	Pgs 386-388 #: 10, 18, 28, 38, 46, 61	Pages 380 – 386
	Complex Fractions (4.5)	Pgs 392-394 #: 2, 4, 6, 10, 16, 24, 28, 33	Pages 389 – 391
	Equations Involving Rational Expressions (4.6)	Pgs 402-405 #: 4, 10, 14, 22, 36, 40, 48	Pages 394 – 401
	Applications (4.7)	Pgs 414-416 #: 2, 4, 12, 22	Pages 405 – 413
	<b>REVIEW FOR MIDTERM MIDTERM EXAM</b>		
<b>Week 8</b>	Rational Exponents (5.1)	Pgs 435-436 #: 6, 8, 12, 18, 24, 30, 34, 40, 48, 50, 58, 60, 68, 70	Pages 426 – 432
	More Expressions Involving Rational Exponents (5.2)	Pgs 443-444 #: 2, 8, 10, 18, 20, 30, 42, 54	Pages 438 – 442
	Equations with Radicals (5.6)	Pgs 475-478 #: 2, 8, 12, 16, 22, 24, 34, 40, 44	Pages 491 - 466
	Complex Numbers (5.7)	Pgs. 484 - 486 # 2 - 10 even; 18, 26, 30, 32, 42 - 56 even, 70-78 even	Pages 478 - 484
<b>Week 9</b>	Completing the Square (6.1)	Pgs 502-504 #: 2, 8, 16, 38, 46, 54	Pages 494 – 502
	The Quadratic Formula (6.2)	Pgs 514-516 #: 4, 14, 24, 28, 32, 38, 42, 44	Pages 505 – 513

<b>Week 10</b>	<p>Exponential Functions (7.1)</p> <p>The Inverse of a Function (7.2) Optional</p> <p>Logarithms Are Exponents (7.3)</p> <p>Properties of Logarithms (7.4)</p>	<p>Pgs 573-578 #: 4, 8, 13, 14, 18, 34, 44, 51</p> <p>Pgs 584-588 #: 2, 8, 16, 22, 30, 34, 35</p> <p>Pgs 594-596 #: 4, 6, 7, 12, 14, 16, 24, 28, 32, 42, 50, 56, 62, 68, 76, 79</p>	<p>Pages 567 – 573</p> <p>Pages 578 – 584</p> <p>Pages 588 – 593</p>
<b>Week 11</b>	<p>Degrees, Radians, and Special Triangles (10.1)</p> <p>Trigonometric Functions (10.2)</p> <p>Trigonometric Functions and Calculators (10.3)</p>	<p>Pgs 723-724 #: 2, 4, 10, 12, 18, 24, 28, 30, 42, 44, 46, 48, 54</p> <p>Pgs 730-731 #: 2, 4, 14, 19-30</p> <p>Pgs 742-743 #: 32, 36, 38, 42, 46, 52, 68, 70, 76, 80</p>	<p>Pages 714 – 722</p> <p>Pages 724 – 730</p> <p>Pages 731 – 742</p>
<b>Week 12</b>	<p>Introduction to Identities (11.1)</p>	<p>Pgs 802-804 #: 2, 4, 10, 12, 16, 20, 24, 28, 30, 36, 46, 50, 60</p>	<p>Pages 796 – 802</p>
	<p>Right Triangle Trigonometry (12.1)</p>	<p>Pgs 847 – 850 #: 2, 6, 8, 10, 14, 18, 22, 36, 40</p>	<p>Pages 838 – 847</p>
	<p>The Law of Sines (12.2)</p>	<p>Pgs 855 – 856 #: 4, 6, 10, 18, 20, 23</p>	<p>Pages 851 – 854</p>
<b>Week 13</b>	<p>The Law of Cosines (12.4)</p>	<p>Pgs 866 – 867 #: 2, 8, 10, 14, 18, 22</p>	<p>Pages 862 – 866</p>
<b>Week 14</b>	<p><b>Review for Departmental Final exam</b></p>	<p>Departmental Review</p>	
<b>Week 15</b>	<p><b>DEPARTMENTAL FINAL CEAFE EXAM (Retake If necessary)</b></p>		