**BRONX COMMUNITY COLLEGE**

 **of the City University of New York**

**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**

**SYLLABUS**

**MTH 28 – College Algebra and Elementary Trigonometry (3 credits, 4 hours per week)**

**Prerequisite:** CUNY Math Proficiency and at least one of the following:

(1) Mathematics high school GPA of at least 70 and successful completion of a course beyond Algebra 1; or

(2) New York State Regents Trigonometry Score of at least 65, or

(3) New York State Regents Common Core Algebra 2 Score of at least 65.

**Textbooks:** 1. Intermediate Algebra 2e, by Lynn Marecek and Andrea Honeycutt Mathis, OpenStax

 <https://openstax.org/details/books/intermediate-algebra-2e>

2. Precalculus by Jay Abramson, OpenStax

<https://openstax.org/details/books/precalculus>

**Course Description:** Fundamentals of intermediate and college algebra essential for the study of pre-calculus and calculus.  Topics include factoring, roots and radicals, rational expressions, quadratic equations, the function concept, and the trigonometric ratios.

This course is a **Pathways Core B (Mathematical and Quantitative Reasoning) Course**:
This course meets the following learning outcomes. A student will:

1. Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.
2. Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
3. Represent quantitative problems expressed in natural language in a suitable mathematical format.
4. Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.
5. Evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.
6. Apply mathematical methods to problems in other fields of study.

**Student Learning Outcomes:** Upon completion of this course, students will be able to:

1. Perform operations of polynomials, rational expressions, radical expressions, and expressions with rational exponents (a, b, d)
2. Solve rational equations, radical equations, and factorable polynomial equations (b, d, e)
3. Solve quadratic equations by factoring, by completing the square, and by the quadratic formula (b, d, e)
4. Demonstrate fluency with function notation. Identify whether a given arrow diagram or algebraic relation represents a function and analyze it to determine its properties such as domain and range (a, c, d)
5. Translate word problems involving modeling with functions and quadratic equations (c, d, f)
6. Solve right triangle trigonometry problems (a, b, d, e)
7. Form models to apply them in the solution of real-world problems involving trigonometry (a, c, d, f)

**Pathways:** This course satisfies CUNY Pathways Required Core Area B (Mathematical and Quantitative Reasoning).

**Academic Integrity:** Academic dishonesty (such as plagiarism and cheating) is prohibited at Bronx Community College and is punishable by penalties, including failing grades, dismissal, and expulsion. For additional information and the full policy on Academic Integrity, please consult the BCC College Catalog.

**Accommodations/Disabilities:** Bronx Community College respects and welcomes students of all backgrounds and abilities. In the event you encounter any barrier(s) to full participation in this course due to the impact of a disability, please contact the disAbility Services Office as soon as possible this semester.  The disAbility Services specialists will meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations for this course. You can reach the disAbility Services Office at: disability.services@bcc.cuny.edu, Loew Hall, Room 211, (718) 289-5874.

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|  | SECTION AND TOPICS | RECOMMENDED EXERCISES[[1]](#footnote-1) |
| **Intermediate Algebra 2e text** |
| Week1 | 3.5 Relations and Functions (only function notation) | 307-332  |
| 6.1 Greatest Common Factor and Factor by Grouping | 9-50 |
| 6.2 Factor Trinomials  | 61-130, 135-152 |
| Week2 | 6.3 Factor Special Products | 159-190, 213-220 |
| 6.4 General Strategy for Factoring Polynomials | 233-246, 249-256 |
| 6.5 Polynomial Equations | 277-326 |
| Week3 | 7.1 Multiply and Divide Rational Expressions | 1-24, 29-44, 49, 50 |
| Week4 | 7.2 Add and Subtract Rational Expressions | 75-142 |
| Week5 | 7.3 Simplify Complex Rational Expressions | 151-194  |
| 7.4 Solve Rational Equations | 197-230 |
| Week6 | **Midterm Review and Exam** |   |
| Week7 | 8.1 Simplify Expressions with Roots  | 1-15, 19-22 |
| 8.2 Simplify Radical Expressions | 55-65 |
| Week8 | 8.3 Simplify Rational Exponents | 119-162 |
| 8.4 Add, Subtract, and Multiply Radical Expressions | 165-168, 183-186, 191-214(only ⓐ) |
| Week9 | 8.5 Divide Radical Expressions | 245, 246, 259-262, 271-282 |
| 8.6 Solve Radical Equations | 287-304, 315-326 |
| Week10 | 8.8 Use the Complex Number System | 409-476 |
| 9.1 Solve Quadratic Equations Using the Square Root Property | 1-30 |
| Week11 | 9.2 Solve Quadratic Equations by Completing the Square | 75-101 |
| 9.3 Solve Quadratic Equations Using the Quadratic Formula | 113-136 |
| **Precalculus text** |
| Week12 | 5.4 Right Triangle Trigonometry (only in degree measure) | 10-41, 52-56 |
| Week13 |
| Week14 | **Final Review** |  |

YH/IP/AW 01/22

EA 01/23 COVID – removed 07/23

1. The instructor will provide additional details on assignments. [↑](#footnote-ref-1)