NEW YORK CITY COLLEGE OF TECHNOLOGY
The City University of New York

DEPARTMENT:	Mathematics
COURSE:	MAT 1275 CO
TITLE:	College Algebra and Trigonometry Corequisite
DESCRIPTION:	An intermediate and advanced algebra course. Topics include quadratic equations, systems of linear equations, exponential and logarithmic functions; topics from trigonometry, including identities, equations and solutions of triangles.
TEXT:	1) College Algebra and Trigonometry: Expressions, Equations and Graphs, by Holly Carley and Ariane Masuda, adapted from Intermediate Algebra 2e by Lynn Marecek and Andrea Honeycutt Mathis, et al. OpenStax, on LibreTexts, Summer 2023. 2) MAT 1275 Workbook by Holly Carley and Ariane Masuda, Summer 2023.
CREDITS:	4
PREREQUISITES:	CUNY proficiency in math OR credit for MAT 1190/MAT 1190CO
	Prepared by Professors Holly Carley and Ariane Masuda (Summer 2023)

A. Testing guidelines
   The following exams should be scheduled:

   1. A one-hour exam at the end of the first quarter
   2. A one-session exam at the end of the second quarter
   3. A one-hour exam at the end of the third quarter
   4. A one-session final examination

B. A scientific calculator is required.

Course-Based Learning Outcomes and Alignment with General Education Goals

Upon satisfactory completion of this course, the student will be able to:

MAT 1275 CO	NYCCT Gen Ed Common Core	CUNY Common Core
Be able to simplify and manipulate linear, quadratic, radical, rational, exponential, logarithmic, and trigonometric expressions.	FS: Transfer; Be able to refer to prior knowledge or skill and can apply such to new situations.	Be able to use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
Be able to solve equations involving linear, quadratic, radical, rational, exponential, logarithmic, or trigonometric expressions as well as systems of linear/quadratic equations.	Foundation and skills: Curiosity: Explore a topic in depth yielding insight indicating interest. QL: Interpretation, presentation: Be able to explain information presented in mathematical forms and to convert relevant information into various mathematical forms.	Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.
Be able to graphically solve equations involving linear and quadratic expressions (including systems of such). Be able to use the unit circle to solve trigonometric equations. Understand the relationships between solutions to equations and their graphs.	FS: Transfer; Be able to refer to prior knowledge or skill and can apply such to new situations. QL: Calculation, Application/Analysis: Be able to carry out accurate calculations in order to solve a problem and to make judgements and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis.	Be able to use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
Be able to frame word problems in terms of mathematical equations and/or graphs. Be able to interpret the mathematical solutions in terms of the original language of the problem.	FS: Independence, reflection: Pursue knowledge beyond classroom requirements and/or show interest in independent educational experiences and reviews prior learning leading to clarification and broader perspectives.	Be able to represent quantitative problems expressed in natural language in a suitable mathematical format and apply mathematical methods to problems in other fields of study.
Be able to write solutions of mathematical problems involving linear, quadratic, radical, rational, or trigonometric expressions with full detailed explanations.	QL: Communication: Be able to express quantitative evidence in support of the argument or purpose of the work.	Be able to effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.
Be able to recognize errors in proposed solutions and explain in written or oral form the nature of such an error as well as be able to correct it. Be able to estimate solutions of equations using graphs.	FS: Initiative: Complete required work and identifies and pursues additional expansion or knowledge or skills. QL: Assumption. Be able to make and evaluate important assumptions in estimation and modeling.	Be able to evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.

New York City College of Technology Policy on Academic Integrity

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

Textbook: College Algebra and Trigonometry: Expressions, Equations and Graphs, by Holly Carley and Ariane Masuda, adapted from Intermediate Algebra 2e by Lynn Marecek and Andrea Honeycutt Mathis, et al. OpenStax, on LibreTexts, Summer 2023.

Workbook: MAT 1275 Workbook by Holly Carley and Ariane Masuda, Summer 2023. The workbook is based on the 6-point process from the chapter book Mathematical Literacy and Critical Thinking by Rojas, E., & Benakli, N. (2020). In: But, J. (eds) Teaching College-Level Disciplinary Literacy. Palgrave Macmillan, Cham.

Class	Lesson	Textbook Section Topic	Workbook Chapter	Homework Workbook Section
1-4	1.1: Arithmetic	1.1.1: Integers 1.1.2: Fractions 1.1.3: Order of Operations and Introduction to Expressions 1.1.4: Integer Exponents	1, 2	1.4, 2.4
5-8	1.2: Polynomials	1.2.1: Linear Expressions 1.2.2: Evaluating, Adding and Subtracting Polynomials 1.2.3: Multiplying Polynomials 1.2.4: Powers of Monomials and Binomials 1.2.5: Diving Polynomials 1.2.6: The Greatest Common Factor and Factoring by Grouping 1.2.7: Factoring Trinomials 1.2.8: Factoring Special Products 1.2.9: General Strategy for Factoring Polynomials	3, 4, 5, 6	3.4, 4.4, 5.4, 6.4
9-12	1.3: Rational Expressions	1.3.1: Integer Exponents: a Review with Variables 1.3.2: Simplifying, Multiplying and Dividing Rational Expressions 1.3.3: Adding and Subtracting Rational Expressions 1.3.4: Complex Rational Expressions	7	7.4
13	**Test 1**			
14-17	1.4: Radical Expressions	1.4.1: Radical Expressions 1.4.2: Simplifying Radical Expressions 1.4.3: Rational Expressions 1.4.4: Adding, Subtracting and Multiplying Radical Expressions 1.4.5: Diving Radical Expressions 1.4.6: Complex Numbers	8, 11 (except quadratic equations)	8.4, 11.4 (except e and f)
18	2.1: Linear Equations	2.1: Linear Equations	9	9.4
19-22	2.2: Quadratic Equations	2.2.1: Solving Quadratic Equations Using the Zero-Product Property 2.2.2: Solving Quadratic Equations Using the Square Root Property 2.2.3: Solving Quadratic Equations by Completing the Square 2.2.4: Solving Quadratic Equations Using the Quadratic Formula 2.2.5: Applications of Quadratic Equations	10, 11	10.4, 11.4 (only e and f)
23	2.3: Polynomial Equations	2.3: Polynomial Equations	12	12.4

Class	Lesson	Textbook Section Topic	Workbook Chapter	Homework Workbook Section
24-26	2.4: Rational Equations	2.4: Rational Equations	13	13.4
27-28	2.5: Radical Equations	2.5: Radical Equations	14	14.4
29	**Test 2**			
30-31	3.1: Linear Equations with Two Variables	3.1.1: Graphing Linear Equations with Two Variables 3.1.2: Slope of a Line 3.1.3: Finding the Equation of a Line	15	15.4
32-33	3.2: Quadratic Equations: Conics	3.2.1: Geometric Description and Solutions of Two Particular: Equations: the Circle and the Parabola 3.2.2: Graphs of Certain Quadratic Equations: Part I 3.2.3: Graphs of Certain Quadratic Equations: Part II	16	16.4
34-35	3.3: Systems of Equations	3.3.1: Systems of Linear Equations with Two Variables 3.3.2: Systems of Nonlinear Equations with Two Variables	17	17.4
36-38	4.1: Trigonometric Expressions	4.1.1: Angles and Triangles 4.1.2: Right Triangles and Trigonometric Ratios 4.1.3: Angles on the Coordinate Plane 4.1.4: Unit Circle	18	18.4
39	**Test 3**			
40	4.2: Trigonometric Equations	4.2: Trigonometric Equations	18	18.4
41-43	4.3: Exponential and Logarithmic Expressions	4.3.1: Evaluating Exponential Expressions 4.3.2: Evaluating Logarithmic Expressions 4.3.3: Properties of Logarithms	19	19.4
44	**Final Exam Review**			
45	**Final Exam**			