

**QUEENSBOROUGH COMMUNITY COLLEGE
MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT**

COURSE OUTLINE

MA-120

COLLEGE ALGEBRA AND TRIGONOMETRY

Pre-requisite: MA-10 or MA 13 or satisfactory score on the Mathematics Placement Test

Hours: 3 Class Hours 2 Recitation Hours 3 Credits

Course Description: A basic presentation of the fundamental concepts of college algebra and trigonometry, systems of linear equations, inequalities, linear, quadratic, trigonometric, exponential and logarithmic functions. During the recitation hours, students review properties of signed numbers, graphing of functions, basic geometric concepts, solution of linear equations, factoring algebraic expressions and its applications to rational expressions. A scientific calculator will be required.

Curricula for which the course is required/recommended:

A.S. Degree Programs in Liberal Arts and Sciences (Science and Mathematics), Engineering Science, Health Sciences, and Environmental Health

General Education Objectives: Use analytical reasoning skills to identify issues or problems and evaluate evidence in order to make informed decisions; reason quantitatively and mathematically as required in their fields of interest and in everyday life; integrate knowledge and skills in their program of study; use information management and technology skills effectively for academic research and lifelong learning.

Course Objectives/ Expected Student Learning Outcomes: Understand the important concepts and theories of algebraic, geometric, trigonometric, exponential and logarithmic functions and apply them to solve problems in mathematics, engineering and other disciplines.

Text: ALGEBRA WITH TRIGONOMETRY FOR COLLEGE STUDENTS, 2nd Edition
Customized for Queensborough Community College,
By: Robert Blitzer
Pearson Custom Publishing, 2009

Methods by which Student learning will be evaluated:

The general guidelines for assessing grades are as follows:

Examinations, Assignments and Classroom Performance	70%
Final Examination	30%

The final exam must count at least 30% of the grade.

Academic Integrity: Academic honesty is taken extremely seriously and is expected of all students. All assignments must be the original work of the student (and partners or group, if applicable). All questions or concerns regarding ethical conduct should be brought to the course instructor. "It is the official policy of the College that all acts or attempted acts that are violations of academic integrity be reported to the Office of Student Affairs (OSA). At the faculty member's

discretion and with the concurrence of the student or students involved, some cases, though reported to the OSA, may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grades as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course." (Taken from the QCC Academic Integrity Policy, 2/14/2005.)

NOTE: Any student who feels that he/she may need an accommodation based upon the impact of a disability should contact the instructor privately to discuss his/her specific needs. Please contact the office of Services for Students with Disabilities in Science Building, room 132 (718 631 6257) to coordinate reasonable accommodations for students with documented disabilities.

<u>TOPIC</u>	<u>SECTIONS</u>	<u>HOURS</u>
Integral Exponents & Scientific Notation	1.6-1.7	3
Functions, Domain, Functional Notation, Vertical Line Test	2.1-2.2	3
Graphing Linear Functions, Slope, Equations of Lines, Introduction to Graphing Calculator	2.4-2.5	4
Solving Systems of Equations: Graphically and Algebraically	3.1	2
Business Applications (optional)	3.2 (182-5, 189-191)	1
Linear & Compound Inequalities & Absolute Value Equations	4.1-4.3	3
Graphing Linear Inequalities (by hand and with a calculator)	4.4	2
Review of Previous Methods of Factoring (5.3-5.6), Introduction of Factoring by Grouping and by Sum and Difference of Cubes	5.3 (p. 334-6) 5.5 (p. 358-9)	2
Solving Polynomial Equations by Factoring and Applications	5.7	2
Complex Fractions	6.3	2
Solving Fractional Equations & Applications	6.6 – 6.7	2
Radicals, Rational Exponents & Radical Equations	7.1 – 7.6	6
Complex Numbers	7.7	3
Solving Quadratic Equations by Completing the Square, Formula and Applications	8.1 – 8.2	3
Graphing Quadratic Functions <u>using Axis of Symmetry, Vertex and Intercepts</u> (by hand and with a calculator)	8.3	3
Angles and Their Measure, Right Triangle Trigonometry, Radian Measure & Trigonometric Functions of Any Angle	10.1-10.3b	10
Graphing Sine & Cosine Functions of the form: $y = a \sin bx$ and $y = a \cos bx$ (by hand and with a calculator)	10.5	3
Exponential Functions and Applications	9.1	3
Logarithmic Functions and Applications	9.3-9.4	4
Exponential and Logarithmic Equations	9.5	3
Review		2
Exams		4
	TOTAL	70

The approximate hours per chapter are guidelines and are at the discretion of the instructor. The instructor is responsible for making assignments and scheduling examinations. The Final Exam date is scheduled by the Registrar.

MA-120 Homework Problems

Additional problems may be assigned from the Chapter Review Exercises, Cumulative Review Exercises, and Chapter Tests at the end of each chapter.

Section	Pages	Problems
1.6	73-75	7,11,13,17,23,27,29,35,39,43,47,55,59,63,67,75,77,81,87,95,97,103,105,109,111,115,117,119,121,123,125
1.7	82-84	1,5,11,17,19,23,25,31,35,39,43,47,51,53,63,65
2.1	102-103	1,3,5,7,9,11,15,17,19,21,31
2.2	111-116	1,3,5,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,59,61
2.4	140-143	1,5,9,13,17,21,23,25,27,33,35,39,43,45,49,51,53,57,67,81,89,95
2.5	150-154	1,5,9,13,17,21,25,27,29,35,37,41,43,45,47,49,51,53,57,61,67,71
3.1	177-181	3,9,13,19,21,27,31,37,39,41,47,51,57,61,63,65,71,75,77
3.2	192-194	1,3,5,11,13,15,17,35
4.1	249-252	7,9,11,13,15,17,19,23,31,35,39,41,43,45,47,49,51,53,57
4.2	258-261	1,3,7,11,15,21,23,25,27,31,33,39,45,47,51,57
4.3	272-273	3,5,7,9,11,15,17,19,21,25,27,31,35
4.4	283-285	3,7,11,15,19,23,29,33,37,41,45,75,77
5.3	336-337	35,37,39,45,47,49,51,53,55,57,59,61,63,65
5.5	359-361	75,77,79,81,83,85,87,91
5.6	366-368	1,3,5,7,11,15,21,23,29,31,33,39,45,47,51,59
5.7	376-379	1,5,7,11,17,21,23,25,27,31,35,37,43,47,71,73,75,77,82
6.3	422-424	1,3,5,7,9,11,13,15,31
6.6	447-449	1,3,5,7,9,11,13,15,17,19,21,23,25,27
6.7	458-459	1,3,5,7,9,11,13
7.1	494-497	1,3,5,9,13,17,19,21,25,27,29,35,39,47,49,59,79,81
7.2	504-507	1,5,9,13,17,21,25,29,33,37,43,47,51,55,57,69,73,79,83,93
7.3	513-515	1,5,9,15,17,21,23,25,27,39,41,43,47,53,55,63,65,67,73
7.4	520-523	1,5,7,9,11,13,15,19,29,33,35,45,47,49,51,57
7.5	531-534	1,3,5,11,13,17,21,23,39,43,47,49,75,77,79,81,87
7.6	541-543	1,3,5,7,9,15,17,19,27,31,43,45,69,71
7.7	551-552	1,3,5,9,11,17,21,23,25,29,31,33,39,43,49,53,59,61,65,69,73,75,85,87,89
8.1	571-574	3,7,11,23,25,27,35,37,39,41,47,51,83,85,87,97
8.2	585-588	1,3,7,11,13,21,25,29,31,35,39,43,45,65,71,77,79
8.3	602-606	27,29,31,33,35,37,39,59
10.1	738	1,3,5,11,13,15,19,21,25,29,35
10.2a	752-754	1,5,9,11,13,15,25,29,31,33,35,39,41,43,45,47,49,51
10.2b	758-759	1,5,7,9,13,15,17,19,21
10.3a	764-766	1,3,5,7,9,13,15,19,23,27,29,31,33,35,37,39
10.3b	775-776	1,5,7,9,13,17,21,23,25,27,29,31,35,39,43,47,51,55,61
10.5	802-805	1,5,7,9,11,13,15,31,33,35,39,41,51,53
9.1	648-651	1,5,7,13,17,25,31,39,41,43,45,53,57
9.3	677-679	1,3,5,9,13,17,21,25,29,33,37,43,53,55,57,59,61
9.4	689-691	1,3,5,7,11,13,17,21,23,27,33,37,39,41,45,51,55,61,63
9.5	702-705	1,3,7,11,13,17,19,21,25,29,31,35,37,41,45,49,53,55,61,65,67,69,73,87,89