

**BRONX COMMUNITY COLLEGE of the City University of New York**  
**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**

**SYLLABUS: MTH 13 – TRIGONOMETRY and COLLEGE ALGEBRA (3 credits, 4 hours)**

**PREREQUISITE: MTH 28 or equivalent**

**TEXTBOOK: “BASIC TECHNICAL MATHEMATICS with CALCULUS”, 10<sup>th</sup> edition**  
**by Allyn J. Washington (ISBN-13: 978-0-13-311653-3;**  
**ISBN-10: 0-13-311653-0)**  
**Publisher: Pearson/Prentice Hall**

**Note to Student: Any scientific calculator is recommended for this class**

SECTIONS	TOPICS	SUGGESTED EXERCISES
<b>CHAPTER 9: VECTORS and OBLIQUE TRIANGLES (≈ 4 hours)</b>		
9.1	Introduction to Vectors	p. 261 /9,13,15,23,37,41,45
9.2	Components of Vectors	p. 264 /5,7,13,17,21,23,27,29
9.3	Vector Addition by Components	p. 270 /3,7,11,13,15,21,25,29
9.4	Applications of Vectors	p. 273 /3,5,7,13,17,19,22
<b>CHAPTER 12: COMPLEX NUMBERS (≈ 8 hours)</b>		
12.1	Basic Definitions	p. 340 /5,9,11,21,23,27,31,37,49,53
12.2	Basic Operations with Complex Numbers	p. 343 /7,11,17,19,25,31,35,41,45
12.3	Graphical Representation of Complex Numbers	p. 345 /5,13,17,29
12.4	Polar Form of a Complex Number	p. 348 /3,7,15,19,21,25,29,33
12.5	Exponential Form of a Complex Number	p. 350 /5,9,11,17,21,27,233,37
12.6	Products, Quotients, Powers, and Roots Of Complex Numbers	p. 356 /5,7,9,11,17,25,29,35,37,39
<b>CHAPTER 3: FUNCTIONS and GRAPHS (≈ 4 hours)</b>		
3.1	Introduction to Functions	p. 83 /5-27 odd
3.2	More about Functions	p. 87 /5,7,15,17,25,29,31,37
3.4	The Graph of a Function	p. 94 /7,11,19,29,33,37,41
<b>CHAPTER 13: EXPONENTIAL AND LOGARITHMIC FUNTIONS (≈ 8 hours)</b>		
13.1	Exponential Functions	p. 368 /3,7,9,11,13,17,19,22,23,26,28
13.2	Logarithmic Functions	p. 372 /5,9,15,19,27,29,35,43,63,65
13.3	Properties of Logarithms	p. 377 /9,17,19,25,27,31,35,41,43,47,49,53,55
13.5*	Natural Logarithms	p. 383 /9,11,13,19,23,43,45,49,51
13.6	Exponential and Logarithmic Equations	p. 386 /5,11,17,21,27,29,39,43,47,49

\* The Common Logarithms in Section 13.4 can be reviewed briefly.

(OVER)

## CHAPTER 10: GRAPHS OF THE TRIGONOMETRIC FUNCTIONS (≈ 4 hours)

10.1	Graphs of $y = a \sin x$ and $y = a \cos x$	p. 294 /3,5,13,19,27,29,33
10.2	Graphs of $y = a \sin bx$ and $y = a \cos bx$	p. 297 /7,11,15,19,27,33,39,43,53,55,61,63
10.3	Graphs of $y = a \sin (bx + c)$ and $y = a \cos (bx + c)$	p. 301 /3,9,13,19,23,25,27,35,37
10.4	Graphs of $y = \tan x$ , $y = \cot x$ , $y = \sec x$ , $y = \csc x$	p. 304 /3,7,15,23
10.5	Applications of the Trigonometric Graphs	p. 306 /1,3,5,7,9,11,13

## CHAPTER 20: ADDITIONAL TOPICS IN TRIGONOMETRY (≈ 10 hours)

20.1	Fundamental Trigonometric Identities	p. 537 /7,11,15,23,25,29,33,35,37,43,49,66
20.2	The Sum and Difference Formulas	p. 542 /3,5,7,9,13,19,23,25,31
20.3	Double-Angle Formulas	p. 545 /9,15,17,21,23,29,31,33,37,39
20.4	Half-Angle Formulas	p. 549 /9,11,13,21,23,29,31,35,39,42
20.5	Solving Trigonometric Equations	p. 553 /5,9,13,15,19,23,27,29,33
20.6	The Inverse Trigonometric Functions	p. 553 /11,13,15,21,23,25,27,33,35,41,44,47

## CHAPTER 5: SYSTEMS OF LINEAR EQUATIONS; DETERMINANTS (≈ 5 hours)

5.5	Solving Systems of Two Linear Equations in Two Unknowns by Determinants	p. 158 /5,9,15,17,19,21,27,39.
5.6	Solving Systems of Three Linear Equations in Three Unknowns Algebraically	p. 162 /3,7,11,13,21
5.7	Solving Systems of Three Linear Equations in Three Unknowns by Determinants	p. 168 /3,5,7,13,15,17,25,36

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Spring 2009 (NN/RG) 2010,2013 (PY)

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8/2022 for prereq (EA)