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

SYLLABUS: MTH 21 – SURVEY OF MATHEMATICS 1 [3 credits, 3 hours per week]

PREREQUISITE: Math Placement Index of at least 60.

TEXT: "Mathematics, A Practical Odyssey," by D. Johnson and T. Mowry, 8th edition CENGAGE Learnng, 2014

This course may be used to satisfy Category B/Mathematical and Quantitative Reasoning of CUNY Pathways Required Core.

Learning Objectives: On successful completion of this course, students will be able to

1) Understand the advantages of place-value numeration systems.
2) Use the language of sets (membership, union, intersection and complement) to analyze and solve problems.
3) Predict experimental outcomes using basic techniques of probability (permutations, combinations, counting techniques, tree diagrams).
4) Use linear and quadratic functions to model real-world problems, and understand the significant differences between the two models.
5) Manage personal finances through a basic understanding of financial instruments such as loans, mortgages, and annuities

Number Systems and Number Theory (3 weeks)		**Suggested homework**
7.1	Place systems	Problems 1-33 (odd).
7.2	Addition and subtraction in different bases	Problems 1-23 (odd)
7.3	Multiplication and division in different bases (divison is optional)	Problems 1-15 (odd)
7.5	Fibonacci numbers and the Golden Ratio	Problems 1, 3, 5, 9, 11 (if discussed in class)
Sets and Counting (3 weeks)		
2.1	Sets and set opertations	Problems 1, 7, 9, 17 – 25 (odd), 29, 41-49 (odd)
2.2	Applications of Venn diagrams	Problems 1, 3, 5, 27-31 (odd)
2.3	Introduction to combinatorics	Problems 1, 5, 15, 17, 23-35 (odd)
2.4	Permutations and combinations	Problems 1, 3, 5, 13, 1, 19-37 (odd), 49, 53

Probability (3 weeks)

3.1	History of probability (optional)	If time permits, in class do some hands on exercises from the exercises section.
3.2	Basic terms of probability	Problems 1-28 (all).
3.3	Basic rules of probability	Problems 11-25 (odd), 47-53 (odd).
3.4	Combinatorics and probability	Problems 1-13 (odd), 21

Finance (3 weeks)

5.1	Simple interest	Problems 5-19 (odd), 37.
5.2	Compound interest	Problems 1-19 (odd), 29, 31, 35.
5.3	Annuities	Problems 1,3, 5, 9, 19.

Linear Programming (2 weeks)

12.0	Review of linear inequalities	Problems 1-19 (odd)
12.1	The geometry of linear programming	Problems 1-11 (odd)

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.

RK / Fall 2016
EA / Fall 2017 incl CLOs
Last updated 01/14/2019
EA / Spring 2022 for preprequisite