

**Far Western University  
Faculty of Management  
Syllabus**

<b>Course Title:</b>	<b><i>Business Mathematics – I</i></b>	<b>Course Code:</b>	<b><i>BMT 112</i></b>
<b>Year:</b>	<b><i>First</i></b>	<b>Level:</b>	<b><i>Undergraduate</i></b>
<b>Semester:</b>	<b><i>I</i></b>	<b>Program:</b>	<b><i>BBA</i></b>
<b>Credits hours:</b>	<b><i>3</i></b>	<b>Lecture hours:</b>	<b><i>48</i></b>

**Course Description**

This course provides the basic knowledge of algebra and equations, graphs, lines, inequalities, logic, sets, and counting. It also analyses the features of various markets and explains price and output determination. The course will provide detailed knowledge of the system of linear equations, matrices, determinants, and their applications in business and economics.

**Course Objectives**

This course aims to make students understand and apply the basic mathematical tools in business decision-making. The course provides theoretical and practical knowledge to the students and enhances their capacity for problem-solving in the business era.

**Learning Outcomes**

After studying this course, students will be able to:

- Understand the basic algebra and equations for business applications.
- Know the plotting graphs and enhance the problem-solving capacity by using equations.
- Sound understanding of logic, set, and counting to improve problem-solving capabilities.
- Overview of function, its range, graph, and types.
- Understand the concept and equations of exponential and logarithmic functions.
- Sound understanding of mathematics of finance and to enhance their problem-solving capabilities.
- Enhance the knowledge of systems of linear equations and matrices to handle various problems.

**Course Contents**

**Unit 1: Algebra and Equations** **LH 6**

- The real numbers
- Polynomials
- Factoring
- Rational expressions
- Exponents and radicals
- First-degree equations
- Quadratic equations

**Unit 2: Graphs, Lines, and Inequalities** **LH 6**

- Graphs
- Equations of lines
- Linear models
- Linear inequalities
- Polynomial and Rational Inequalities

**Unit 3: Logic, Sets, and Counting** **LH 8**

- Logic: Statements, Logical connectives, Logical equivalence, Tautology and contradiction
- Sets: Set representation, Venn diagram, Set operations, Applications
- Basic counting principles
- Permutations and combinations

**Unit 4: Functions and Graphs****LH 10**

- Functions: Dependent and Independent variables, Domain and Range
- Graph of a function
- Linear function and its applications
- Quadratic function and its applications
- Polynomial functions
- Rational functions
- Logarithmic functions, Applications of logarithmic functions, Logarithmic and exponential equations

**Unit 5: Mathematics of Finance****LH 8**

- Interest rate: Simple interest and discount, Compound interest, Continuous compounding
- Annuities and Sinking funds: Annuities, Future value, Sinking funds, Present value, Amortization

**Unit 6: Systems of Linear Equations and Matrices****LH 10**

- Basic matrix operations, matrix products
- Systems of two linear equations in two variables
- Larger systems of linear equations
- Applications of systems of linear equations
- Determinant
- Matrix inverses
- Applications of matrices

**Basic Textbook:**

Lial, M., Hungerford, T. W., & Holcomb, J. *Mathematics with applications* (10<sup>th</sup> ed.). Pearson.

**Reference Book.**

Barnett, R. A., Ziegler, M. R., & Byleen, K. E. *College mathematics for business, economics, life sciences and social sciences* (12<sup>th</sup> ed.). Pearson.