



Department of Mathematics and Computer & Information Science

PRECALCULUS FOR BUSINESS MA 2080

Departmental Syllabus

TEXTBOOK: **College Mathematics for Business Economics, Life Sciences and Social Sciences**, 14th Edition, by Barnett, Ziegler, and Byleen, Pearson 2018, ISBN-13: 978-0134674148.

Prerequisite: A grade of C or higher in College Algebra-MA1020

COURSE DESCRIPTION: The study of linear, quadratic, exponential and logarithmic functions and their graphs; systems of equations and an introduction to matrices; applications in the fields of business and economics.

COURSE OBJECTIVES: The main goal of this course is to provide the student with the basic concepts of functions and the mathematical maturity needed for learning business calculus. The course is a survey of mathematical analysis techniques used in the fields of business and economics.

ATTENDANCE: Class attendance is required and a record of attendance will be kept. If you miss a class it is your responsibility to find out what material was covered in class, what the homework was and if any announcements have been made about the schedule for upcoming exams.

COURSE EVALUATION & GRADING: Your grade will be based on exams, quizzes, class work, and homework. There will be in class cumulative final exam. The grading scale is as follows:

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|--|---------------------------|---------------------------|---------------------------|-------------|
| A = [94, 100] A ⁻ = [90, 93] | B ⁺ = [87, 89] | C ⁺ = [77, 79] | D ⁺ = [67, 69] | F = [0, 59] |
| | B = [84, 86] | C = [74, 76] | D = [64, 66] | |
| | B ⁻ = [80, 83] | C ⁻ = [70, 73] | D ⁻ = [60, 63] | |

TUTORIAL: Drop-in tutorial is available in the Mathematics Learning Center during the Fall and Spring semesters.

ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS: If you have or suspect you may have a physical, psychological, medical or learning disability that may impact your course work, please contact The Office of Services for Students with Disabilities (OSSD), Office NAB room 2064, Phone: 516-876-3009. All support services are free and all contacts with the OSSD are strictly confidential.

TOPICS TO BE COVERED

Textbook College Mathematics for Business Economics, Life Sciences and Social Sciences, 14th Edition

1: LINEAR EQUATIONS AND GRAPHS

- 1.1 Linear Equations and Inequalities
- 1.2 Graphs and Lines
- 1.3 Linear Regression

2: FUNCTIONS AND GRAPHS

- 2.1 Functions
- 2.2 Elementary Functions: Graphs and Transformations
- 2.3 Quadratic Functions
- 2.4 Polynomial and Rational Functions
- 2.5 Exponential Functions
- 2.6 Logarithmic Functions

3: MATHEMATICS OF FINANCE

- 3.1 Simple Interest
- 3.2 Compound and Continuous Compound Interest
- 3.3 Future Value of an Annuity; Sinking Funds
- 3.4 Present Value of an Annuity; Amortization

4: SYSTEMS OF LINEAR EQUATIONS; MATRICES

- 4.1 Review: Systems of Linear Equations in Two Variables
- 4.2 Systems of Linear Equations and Augmented Matrices
- 4.3 Gauss-Jordan Elimination
- 4.4 Matrices: Basic Operations
- 4.5 Inverse of a Square Matrix
- 4.6 Matrix Equations and Systems of Linear Equations

5: LINEAR INEQUALITIES AND LINEAR PROGRAMMING

- 5.1 Linear Inequalities in Two Variables
- 5.2 Systems of Linear Inequalities in Two Variables
- 5.3 Linear Programming in Two Dimensions: A Geometric Approach

6: LINEAR PROGRAMMING: THE SIMPLEX METHOD

- 6.1 The Table Method: An Introduction to the Simplex Method
- 6.2 The Simplex Method: Maximization with Problem Constraints of the Form \leq
- 6.3 The Dual Problem; Minimization with Problem Constraints of the form \geq
- 6.4 Maximization and Minimization with Mixed Problem Constraints

7: LOGIC, SETS, AND COUNTING

- 7.1 Logic
- 7.2 Sets
- 7.3 Basic Counting Principles
- 7.4 Permutations and Combinations

8: **PROBABILITY**

- 8.1 Sample Spaces, Events, and Probability
- 8.2 Union, Intersection, and Complement of Events; Odds
- 8.3 Conditional Probability, Intersection, and Independence
- 8.4 Bayes' Formula
- 8.5 Random Variables, Probability Distribution, and Expected Value