Department of Mathematics and Computer & Information Science

CALCULUS FOR BUSINESS & ECONOMICS MA 2300

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 Precalculus for Business & Economics –MA2080

COURSE DESCRIPTION: Topics include limits, differentiation, and integration. Relevant applications from the areas of business, economics, and the social sciences will be discussed.

COURSE OBJECTIVES: To provide students majoring in the School of Business with a foundation in differential calculus and an introduction to integral calculus. Emphasis is placed on business and economic applications, problem solving and graphing skills, applied methodologies, models and introduction to optimization.

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:

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

9: LIMITS AND THE DERIVATIVE
        9.1 Introduction to Limits
        9.2 Infinite Limits and Limits at Infinity
        9.3 Continuity
        9.4 The Derivative
        9.5 Basic Differentiation Properties
        9.6 Differentials
        9.7 Marginal Analysis in Business and Economics

10: ADDITIONAL DERIVATIVE TOPICS
        10.1 The Constant e and Continuous Compound Interest
        10.2 Derivatives of Exponential and Logarithmic Functions
        10.3 Derivatives of Products and Quotients
        10.4 The Chain Rule
        10.5 Implicit Differentiation
        10.6 Related Rates
        10.7 Elasticity of Demand

11: GRAPHING AND OPTIMIZATION
        11.1   First Derivative and Graphs
        11.2   Second Derivative and Graphs
        11.3   L'Hôpital's Rule
        11.4   Curve Sketching Techniques
        11.5   Absolute Maxima and Minima
        11.6   Optimization

12: INTEGRATION
        12.1   Antiderivatives and Indefinite Integrals
        12.2   Integration by Substitution
        12.3   Differential Equations; Growth and Decay
        12.4   The Definite Integral
        12.5   The Fundamental Theorem of Calculus

13: ADDITIONAL INTEGRATION TOPICS
        13.1   Area Between Curves
        13.2   Applications in Business and Economics