DEPARTMENT OF MATHEMATICS AND COMPUTER & INFORMATION SCIENCE

CALCULUS & ANALYTIC GEOMETRY I MA2310
Departmental Syllabus

TEXTBOOK: Single Variable **Calculus**: Early Transcendentals, 2nd Edition, by Briggs, Cochran, and Gillett, published by Pearson, ISBN-13: **9780321965172**

Prerequisite: Grade of C or higher in Precalculus-**MA2090**

COURSE DESCRIPTION: Topics include functions and their graphs, limits and continuity, derivatives of polynomials, rational functions, algebraic functions, exponential & logarithmic functions, and trigonometric functions, applications of the derivative, definite and indefinite integrals, fundamental theorem of calculus.

COURSE OBJECTIVES: After successful completion of this course students should understand the meaning of limits, continuity, and derivatives and be able to use them to solve a variety of problems.

COURSE EVALUATION & GRADING: Your grade will be based on quizzes, class work, homework, Midterm Exams, and Final Exam. The Final exam is **cumulative** and it counts at least **30%** of the course grade.

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

TUTORIAL: Drop-in tutorial is available in the Mathematics Learning Center.

WITDRAWALS: If you decide to withdraw from this course, you must complete an official withdrawal form at the office of the registrar to receive a **W** in this course.

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 Stacey DeFelice, Director, The Office of Services for Students with Disabilities (OSSD), NAB, 2065, Phone: 516-628-5666, Fax (516) 876-3005, TTD: (516) 876-3083. E-mail: defelices@oldwestbury.edu. The office will help you determine if you qualify for accommodations and assist you with the process of accessing them. All support services are free and all contacts with the OSSD are strictly confidential.

TOPICS TO BE COVERED

Textbook   Single Variable **Calculus**: Early Transcendentals Plus MyMathLab with eText, 2nd Edition, by Briggs, Cochran, and Gillett, published by Pearson, ISBN-13: **9780321965172**

1. LIMITS
2.1   The Idea of Limits
2.2   Definition of Limits
2.3   Techniques for Computing Limits
2.4   Infinite Limits
2.5   Limits at Infinity
2.6   Continuity

2. DERIVATIVES
3.1   Introducing the Derivative
3.2   Working with derivatives
3.3   Rules of Differentiation
3.4   The Product and Quotient Rules
3.5   Derivatives of Trigonometric Functions
3.6   Derivatives as Rates of Change
3.7   The Chain Rule
3.8   Implicit Differentiation
3.9   Derivatives of Logarithmic and Exponential Functions
3.10   Derivatives of Inverse Trigonometric Functions
3.11   Related Rates

3. APPLICATIONS OF THE DERIVATIVE
4.1   Maxima and Minima
4.2   What Derivatives Tell Us
4.3   Graphing Functions
4.4   Optimization Problems
4.5   Linear Approximation and Differentials
4.6   Mean Value Theorem
4.7   L'Hôpital's Rule
4.9   Antiderivatives

4. INTEGRATION
5.1   Approximating Areas Under Curves
5.2   Definite Integrals
5.3   Fundamental Theorem of Calculus
5.4   Working with Integrals
5.5   Substitution Rule