THE COLLEGE AT OLD WESTBURY
STATE UNIVERSITY OF NEW YORK

Department of Mathematics, Computer & Information Science

CALCULUS & ANALYTIC GEOMETRY I MA2310

Departmental Syllabus

TEXTBOOK: Calculus: Early Transcendentals, 8th Edition, Howard Anton, Irl Bivens, Stephen Davis

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, and applications of the derivative.

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.

CALCULATOR: A graphing calculator is required for this course, and may be used on exams. Before buying a calculator check with your instructor to see if a particular model is recommended.

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 = [93, 100]	**B** $^{+}$ = [87, 89]	**C** $^{+}$ = [77, 79]	**D** $^{+}$ = [67, 69]	
A $^{-}$ = [90, 92]	**B** = [83, 86]	**C** = [73, 76]	**D** = [63, 66]	**F** = [0, 59]
	B $^{-}$ = [80, 82]	**C** $^{-}$ = [70, 72]	**D** $^{-}$ = [60, 62]	

TUTORIAL: Drop-in tutorial is available in the mathematics learning center, Room **A118.**

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 The Office of Services for Students with Disabilities (OSSD), Phone: 516-876-3009, Fax: 516-876-3005, TTD: 516-876-3083. All support services are free and all contacts with the OSSD are strictly confidential.

TOPICS TO BE COVERED

Textbook **Calculus**: Early Transcendentals, 8th Edition, Howard Anton, Irl Bivens, Stephen Davis

1. REVIEW OF FUNCTIONS AND THEIR GRAPHS

1.1 Functions

1.3 New functions from Old

1.6 Exponential and Logarithmic Functions

2. LIMITS AND CONTINUITY

2.1 Limits (An intuitive Approach)

2.2 Computing Limits

2.3 Limits at Infinity

2.5 Continuity

2.6 Continuity of Trigonometric Functions

3. THE DERIVATIVE

3.1 Tangent Lines, Velocity, and Rates of Change

3.2 The Derivative Function

3.3 Techniques of Differentiation

3.4 The Product and Quotient Rules

3.5 Derivative of Trigonometric Functions

3.6 The Chain Rule

3.7 Related Rates

3.8 Local Linear Approximation

4. DERIVATIVES OF LOGARITMIC, EXPONENTIAL, AND INVERSE TRIG FUNCTIONS

4.1 Implicit Differentiation

4.2 Derivatives of Logarithmic Functions

4.3 Derivatives of Exponential and Inverse Trigonometric Functions

4.4 L'Hopital's Rules

5. APPLICATIONS OF THE DERIVATIVE

5.1 Analysis of Functions I: Increase, Decrease, and Concavity

5.2 Analysis of Functions II: Relative Extrema; Graphing Polynomials

5.4 Absolute Maxima and Minima

5.5 Applied Maximum and Minimum problems

5.6 Newton's Method

6.2 The Indefinite Integral

6.3 Integration by Substitution