



Department of Mathematics, Computer & Information Science

CALCULUS & ANALYTIC GEOMETRY I

MA2310 • SYLLABUS FALL 2013

Professor: **Frank Sanacory**

Office: **NAB 2014**

Email: SanacoryF@oldwestbury.edu

Telephone: **(516) 876-3968**

Office Hours **MTW 10:20 am - noon**

Course Web Page <https://sanacory.com/math>

TEXTBOOK: Calculus: Early Transcendentals, Single Variable, by Briggs and Cochran, ISBN: 9780321664143. 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.

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.

COURSE EVALUATION & GRADING: Your grade for the course will be based on your homework/quiz performance (10%), three tests (50%) and a comprehensive final exam (40%).

A 93 - 100	B+ 87- - 89	C+ 77- 79	D+ 67 - 69	F 0 - 59
A- 90 - 92	B 83- - 86	C 73- 76	D 63 - 66	
	B- 80- - 82	C- 70- 72	D- 60 - 62	

RESPECT: No cell phones in class and no texting. And no calculator will be needed for this course.

FINAL EXAM: Will be held Monday December 16 in our regular classroom at the regular class time.

TOPICS TO BE COVERED

Textbook : Calculus: Early Transcendentals, Single Variable, by Briggs and Cochran,
ISBN: 9780321664143

1 . FUNCTIONS

- 1.1 Review of Functions
- 1.2 Representing Functions
- 1.3 Inverse, Exponential, and Logarithmic Functions
- 1.4 Trigonometric Functions and Their Inverses

2 . L I M I T S

- 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

3 . DERIVATIVES

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

4 . 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
- 4.8 Antiderivatives

5 . 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