THE COLLEGE AT OLD WESTBURY
STATE UNIVERSITY OF NEW YORK

Department of Mathematics, Computer & Information Science

CALCULUS & ANALYTIC GEOMETRY I
MA2310 • SYLLABUS SPRING 2015

Professor: **Frank Sanacory**
Office: **NAB 2014**
Email: SanacoryF@oldwestbury.edu *Office Hours:* M 3:00-4:30, TR 1:00PM – 2:30PM
Course Web Site: **sanacory.net**

TEXTBOOK: Calculus: Early Transcendentals, Single Variable, by Briggs and Cochran, 2nd edition. ISBN: 978-0-321-96517-2. It should include MyMath Lab.

PREREQUISITES: Grade of C or higher in Precalculus MA 2090.

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.

COURSE EVALUATION & GRADING: Your grade for the course will be based on your homework/quiz performance (15%), two tests (50%) and a comprehensive final exam (35%).

MyMathLab: MyMathLab is an online interactive program that contains homework problems, quizzes, videos, unlimited practice exercises. Note that there is **no extension of due dates.**

ACCESS to MyMathLab:

- Web address: pearsonmylabandmastering.com
- Course name: Calculus 1 - MA2310.002, Sanacory, Spring 2015
- Course ID: sanacory83816

CALCULATOR: No calculator is allowed.

TUTORIAL: Drop-in tutorial is available in the Mathematics Learning Center in **H211a**.

OFFICE OF SERVICES FOR STUDENTS WITH DISABILITIES: SUNY/Old Westbury is committed to assuring that all students have equal access to learning and extracurricular activities on campus. If you have, or suspect you may have a physical, psychological, medical or learning disability that may impact how you function academically and/or your access to activities on campus, please contact Dr. Lisa Whitten, Director of the Office of Services for Students with Disabilities (OSSD). She will work with you to determine which accommodations you need, and provide you with documentation for your professors. The OSSD is located in the NAB, Room 2064. OSSD services are free and confidential. In addition, we hire qualified note takers at $100.00 for the semester if you are enrolled in the course, and $9.00 an hour if you are not. You can reach Dr. Whitten at 516-876-3009 or whittenl@oldwestbury.edu.

RESPECT: No cell phones in class and no texting.

FINAL EXAM: Will be held May 11, 2015 in our regular classroom at the regular class time.

TOPICS TO BE COVERED:

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. **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
3. **DERIVATIVES**
    - 3.1 Introducing the Derivative
    - 3.2 Working with the Derivative
    - 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
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
    - 4.9 Antiderivatives
5. **INTEGRATION**
    - 5.1 Approximating Areas Under Curves
    - 5.2 Definite Integrals
    - 5.3Fundamental Theorem of Calculus
    - 5.4 Working with Integrals
    - 5.5 Substitution Rule