SUNY OLD WESTBURY

**Department of Mathematics, Computer & Information Science**

# CALCULUS & ANALYTIC GEOMETRY II
# MA 2320.002 • SYLLABUS SPRING 2016

*Professor:* **Frank Sanacory**
*Office:* **NAB 2014** *Email:* SanacoryF@oldwestbury.edu
*Course Web Site:* ***sanacory.net*** *Office Hours:* ***M 3:50PM – 4:45PM, TR 5:20PM – 7:00PM***

**TEXTBOOK: Single Variable Calculus: Early Transcendentals**, 2nd Edition, by Briggs, Cochran, and Gillett, published by Pearson 2014, ISBN-13: 9780321965172.

**PREREQUISITES**: A grade of C or better on MA 2310 : .

**COURSE DESCRIPTION**: Topics include indefinite and definite integral, applications of definite integral, integration techniques, infinite series, and analytic geometry.

**COURSE OBJECTIVES**: To become proficient in integration and its applications, to learn about infinite sequences and series.

**COURSE EVALUATION & GRADING:** Your grade for the course will be based on your homework/quiz performance (10%), three tests (60%) and a comprehensive final exam (30%).

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

**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 17, 2016 in our regular classroom at the regular class time.

TOPICS COVERED

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
APPLICATIONS OF INTEGRATION
6.1 Velocity and net change
6.2 Regions between curves
6.3 Volume by slicing
6.4 Volume by shells
6.5 Length of curves
6.6 Surface area
INTEGRATION TECHNIQUES
7.1 Basic approaches
7.2 Integration by parts
7.3 Trigonometric integrals
7.4 Trigonometric substitutions
7.5 Partial fractions
7.8 Improper integrals
7.9* Introduction to differential equations
SEQUENCES AND INFINITE SERIES
8.1 An overview
8.2 Sequences
8.3 Infinite series
8.4 The Divergence and Integral Tests
8.5 The Ratio, Root, and Comparison Tests
8.6 Alternating series
POWER SERIES
9.1 Approximating functions with polynomials
9.2 Properties of Power series
9.3 Taylor series
9.4 Working with Taylor series
PARAMETRIC AND POLAR CURVES
10.1 Parametric equations
10.2 Polar coordinates
10.3* Calculus in polar coordinates
10.4* Conic section

* Covered depending on time.