SUNY OLD WESTBURY

DEPARTMENT OF MATHEMATICS AND COMPUTER & INFORMATION SCIENCE

CALCULUS & ANALYTIC GEOMETRY II MA2320

Departmental Syllabus

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

Prerequisite Grade of **C** or higher in **Calculus & Analytic Geometry I - 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 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]	**B** $^{+}$ = [87, 89]	**C** $^{+}$ = [77, 79]	**D** $^{+}$ = [67, 69]	
A^{-} = [90, 93]	**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**

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 sections

***** Optional as time permits