MOLLOY UNIVERSITY

CATALOG DESCRIPTION:
A continuation of the calculus of one variable. Topics include differentiation and integration of the transcendental functions, integration techniques, and infinite series.

Course Learning Outcomes: Upon successful completion of MAT 2220–Calculus 2, a student will be able to:
- Differentiate and integrate transcendental, exponential, and logarithmic functions
- Examine various techniques of integration and apply them to definite, indefinite, and improper integrals
- Approximate definite integrals using numerical integration techniques and solve related problems
- Distinguish between the concepts of sequence and series, and determine limits of sequences and convergence/divergence of a sequence or series and the approximate sum of a series
- Define, differentiate, and integrate functions represented using power series expansions, including Taylor series

PREREQUISITES: MAT 2210–Calculus 1

REQUIRED TEXT: *Calculus* 3rd Edition

      Authors: Jon Rogawski and Colin Adams

      Publisher: W.H. Freeman and Company

REQUIRED SUPPLIES: TI-84 Plus CE (or any other) graphing calculator

TOPICS:

Chapter 4/Review Topics:
    4-09 U-Substitution
    4-10 Introduction to Differential Equations
    4-11 Integration Theorems (FTC1, FTC2, MVT, AVT)
    4-12 Numerical Integration
    4-13 U-Substitution with Change of Variable Formula

Chapter 5:
    5-01 Logarithms
    5-02 Calculus with Logarithms and Exponentials
    5-03 Evaluating and Solving Logarithmic and Exponential Equations
    5-04 Applications of Logarithms and Exponentials
    5-05 Some Intellectual Achievements of Calculus
    5-06 Present and Future Value
    5-07 Further Transcendental Functions (Inverse Trig, Exponentials and Logs)

Chapter 6:
    6-02: Setting up Integrals: Volume, Density, Average Value
    6-03: Volumes of Revolution

6-04 The Method of Cylindrical Shells
6-05 Work and Energy

Chapter 7:

7-01 Integration by Parts
7-02 Trigonometric Integrals
7-03 Trigonometric Substitution
7-05 The Method of Partial Fractions
7-06 Strategies for Integration
7-07 Improper Integrals
7-09 Numerical Integration

Chapter 8:

8-01 Arc Length and Surface Area
8-04 Taylor Polynomials

Chapter 10:

10-01 Sequences
10-02 Summing and Infinite Series
10-03 Convergence of Series with Positive Terms
10-04 Absolute and Conditional Convergence
10-05 The Ratio and Root Tests and Strategies for Choosing Tests
10-06 Power Series
10-07 Taylor Series and Maclaurin Series

**All Sections correspond to Calculus 3rd Edition by Jon Rogawski and Colin Adams