SOUTHEASTERN LOUISIANA UNIVERSITY
DEPARTMENT OF MATHEMATICS
MATH 2010 COURSE INFORMATION SHEET
Effective August 2024

COURSE TITLE: Calculus II   **CREDIT:** 5 semester hours

PREREQUISITE: A grade of "C" or better in MATH 2000.

CATALOGUE DESCRIPTION: The second of a standard three-course sequence on the foundations of differential and integral calculus. Topics include techniques of integration, applications of the integral, parametric equations, polar coordinates, sequences, and infinite series.

TEXT: *Calculus of a Single Variable*, 12th Edition by Larson and Edwards   **PUBLISHER:** Cengage Learning

TOPICS COVERED: Based upon the current textbook, the following outline allows for 5 regular examinations and the final examination. The section numbers are given in parentheses after each topic:

Applications of Integration (1 Weeks – Chapter 7)
    Arc Length and Surfaces of Revolution (7.4)

Integration Techniques, L'Hopital's Rule, and Improper Integrals (4.5 Weeks – Chapter 8)
    Basic Integration Rules (8.1)
    Integration by Parts (8.2)
    Trigonometric Integrals (8.3)
    Trigonometric Substitution (8.4)
    Partial Fractions (8.5)
    Indeterminate Forms and L'Hopitals' Rules (5.6)
    Improper Integrals (8.8)

Infinite Series (4.5 Weeks – Chapter 9)
    Sequences (9.1)
    Series and Convergence (9.2)
    The Integral Test and p-series (9.3)
    Comparisons of Series (9.4)
    Alternating Series (9.5)
    The Ratio and Root Tests (9.6)
    Taylor Polynomials and Approximations (9.7)
    Power Series and Representation of Functions by Power Series (9.8, 9.9)
    Taylor and Maclaurin Series (9.10)

Conics, Parametric Equations, and Polar Coordinates (4 Weeks – Chapter 10)
    Conics and Calculus (10.1)
    Plane Curves and Parametric Equations (10.2)
    Parametric Equations and Calculus (10.3)
    Polar Coordinates and Polar Graphs (10.4)
    Area and Arc Length in Polar Coordinates (10.5)
    Polar Equations of Conics and Kepler's Laws (10.6)