RUTGERS
UNIVERSITY | NEWARK

CALCULUS II

21:640:136 (4 credits)

COURSE DESCRIPTION:
Applications of integrals, calculus of trigonometric and inverse trigonometric functions, techniques of integration, indeterminate forms, infinite series and Taylor series, polar coordinates.

PREREQUISITE:
21:640:135 (Calculus I) or 21:640:155 (Honors Calculus I.)

TEXTBOOK:
"Calculus Early Trancendentals Single Variable with My Math Lab," 3rd edition, by Briggs, published by Pearson. ISBN 9780134996714.

DEPARTMENT WEB SITE: http://www.ncas.rutgers.edu/math

FREE TUTORING: is available in the Rutgers Learning Center, Room 140 Bradley Hall (973-353-5608.)

THIS COURSE COVERS THE FOLLOWING CHAPTERS AND SECTIONS:

Chapter 5: Integration
5.5 Substitution Rule (optional review)

Chapter 6: 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 (brief overview, if not full coverage)
6.7 Physical Applications

Chapter 7: Logarithmic, Exponential, and Hyperbolic Functions
7.1 Logarithmic and Exponential Functions Revisited
7.2 Exponential Models
7.3 Hyperbolic Functions (brief overview, if not full coverage)

Chapter 8: Integration Techniques
8.1 Basic Approaches
8.2 Integration by Parts
8.3 Trigonometric Integrals
8.4 Trigonometric Substitutions
8.5 Partial Fractions
8.6 Integration Strategies
8.8 Numerical Integration
8.9 Improper Integrals

Chapter 10: Sequences and Infinite Series
10.1 An Overview
10.2 Sequences
10.3 Infinite Series
10.4 The Divergence and Integral Tests
10.5 Comparison Tests
10.6 Alternating Series
10.7 The Ratio and Root Tests
10.8 Choosing a Convergence Test (very brief overview, for reference)

Chapter 11: Power Series
11.1 Approximating Functions with Polynomials
11.2 Properties of Power Series
11.3 Taylor Series
11.4 Working with Taylor Series

Chapter 12: Parametric and Polar Curves
12.1 Parametric Equations
12.2 Polar Coordinates
12.3 Calculus in Polar Coordinates
12.4 Conic Sections

Department of Mathematics & Computer Science
SmithHall216,101WarrenStreet,Newark,NewJersey07102
Phone: (973)353-1004 Fax:(973)353-5270