Calculus II MATH 155

4.0 Hours, 4.0 Credits
Department of Mathematics and Statistics
Hunter College

Course Description:

This is the second semester of a calculus sequence which is an introduction to differential and integral calculus, suitable for all students majoring in science or mathematics, or any other course of study requiring calculus.

Goals:

The student will be expected to differentiate and manipulate transcendental functions, evaluate definite and indefinite integrals using substitution, integration by parts, trigonometric substitution, and partial fractions, approximate definite integrals using numerical techniques, compute arc lengths of curves and areas of surfaces of revolution in rectangular and polar coordinates, evaluate the convergence of infinite series, and compute and manipulate power series representations of functions.

Prerequisites:

Completion of MATH 150 or the equivalent with a grade of C or better.

Text:

Essential Calculus, 2nd Edition
By: James Stewart ,
Cengage Learning.

Topics to be covered:

Lecture	
1	5.1 Inverse functions
2	5.2 The natural logarithmic function

3	5.3 The natural exponential function
4	5.5 Exponential growth and decay
5	5.6 Inverse trigonometric functions
6	5.8 Indeterminate forms and L'Hospitals rule
7	6.1 Integration by parts
8	6.2 Trigonometric integrals and substitutions
9	Exam I
10	6.3 Partial fractions
11	6.5 Approximate integrals (Just Simpson's rule)
12	6.6 Improper integrals
13	7.4 Arc length
14	7.5 Area of a surface of revolution
15	7.6 Applications to physics and engineering (Just Hooke's law)
16	8.1 Sequences
16	8.2 Series
17	8.3 The integral and comparison tests
18	Exam II
19	8.4 Other convergence tests
20	8.5 Power series

21	8.6 Representing functions as power series
22	8.7 Taylor and Maclaurin series
23	8.8 Applications of Taylor polynomials
24	9.1 Parametric curves
24	9.2 Calculus with parametric curves
25	9.3 Polar coordinates
26	EXAMIII

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