



Mathematics for Chemistry

Course Code	Course Num.	Course Name	Credit Hours	Lec.	Lab.	Tut.	Prerequisites
MAT	103	Mathematics for Chemistry	4	3	0	2	MAT 101

OBJECTIVES:

- To understand the meaning of definite integral as a limit of Riemann sum.
- To learn different techniques of integration.
- To develop the basics of the calculus of infinite series, and their applications.
- To be familiar with basics of matrix theory.

To be familiar with techniques for solving first and second order differential equations.

Syllabus:

Definite Integrals: Review the Formulas and Techniques, Area between two curves, Substitution in Definite Integrals, Integration by Parts, Trigonometric Techniques of Integration, and Integration of Rational Functions using Partial Fractions.

Infinite Series: Infinite Series (Convergence and divergence) Integral test.

P-series test, Comparison test, and Limit Comparison test. Alternating series,

Absolute convergence, ratio test and root test. Power series.

System of Linear equations, Matrices and Determinants: Solving linear systems, matrix notation, augmented matrix of a linear system,

Reduced echelon form a matrix –Gaussian and Gauss Jordan Elimination, Algebra of matrices, Inverse of a square matrix and Determinants.

Ordinary differential equations: First order ordinary differential equations, separable equations and integrating factor. Second order ordinary differential equations.

TEXTBOOK:

Calculus, Early Transcendental Functions, Robert Smith, Roland Minton, McGraw-Hill Science Engineering, 2007.

REFERENCES:

1. Calculus, O. Swokowski, et al, PWS Pub. Co.; 6th edition (1994).
2. Calculus Early Transcendentals, C. Henry Edwards, David E. Penney, Prentice Hall, 2008.

