Math 234A : Complex Analysis

California State University, Sacramento · Department of Mathematics & Statistics

Complex numbers, complex functions, analytic functions, complex integration, harmonic functions.

Catalog Description

Complex numbers, complex functions, analytic functions, complex integration, harmonic functions. **Graded**: Graded Student. **Units**: 3.0.

Prerequisites

Math 130B; Math 134 or 105B recommended.

Course Outline

  I. Complex Numbers

    A. Complex number system

    B. Complex plane

    C. Extended complex plane

  II. Elementary Functions

    A. Powers

    B. Roots

    C. Exponential and logarithmic functions

  III. Elementary Point Set Topology

  IV. Analytic Functions

    A. Limits, continuity, differentiation

    B. Elementary theory of power series

    C. Uniform convergence

    D. Conformity

    E. Linear fractional transformation

  V. Complex Integration

    A. Complex integral

    B. Cauchy's theorem for triangle, rectangle, disk

    C. Cauchy's integral formula

    D. Local properties of analytic functions

    E. General form of Cauchy's Theorem

      1. Index of a point with respect to a closed curve

      2. Chains and cycles