Math 134 : Functions of a Complex Variable & Applications

California State University, Sacramento · Department of Mathematics & Statistics

This one semester course deals with the complex plane; analytic functions; integration and Cauchy's Theorem; sequences and series, residue calculus; applications to potential theory; Fourier and Laplace transforms.

Catalog Description

Complex plane; analytic functions; integration and Cauchy's Theorem; sequences and series; residue calculus; applications to potential theory; Fourier and Laplace transforms. **Graded**: Graded Student. **Units**: 3.0.

Prerequisites

Math 32

Course Outline

I. Algebra and Geometry of Complex Numbers (1 Week)

II. Topology of the Complex Plane (1 Week)

III. Power series (1 Week)

IV. Differentiation, including the Cauchy-Riemann Equations (2 Weeks)

V. Exponential and Trigonometric Functions (1 Week)

VI. Integration (2 Weeks)

VII. Logarithms and the Winding Number (1 Week)

VIII. Cauchy's Theorem (1 Week)

IX. Taylor Series (1 Week)

X. Laurent Series (1 Week)

XI. Residues (1 Week)

XII. Conformal mappings (1 Week)