

CALIFORNIA STATE UNIVERSITY, SACRAMENTO
Department of Mathematics and Statistics

SYLLABUS

Math 134: Functions of a Complex Variable and Applications

Prerequisite: Math 32

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.

OUTLINE:

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| 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 |