THE OHIO STATE UNIVERSITY

Mathematics 4552
Complex Analysis
Spring, Summer
3 credits

Catalog Description:
Introduction to analytic functions of a complex variable, integral theorems, power series, residues, conformal mapping.

Prerequisite:
C- or better in 2153, 2162.xx, 2173, 2182H, or 4182H; or credit for 254.xx, 263.xx, 263.01H, or 264H.

Exclusions:
Not open to students with credit for Math 5522H, 552 or 514.

Purpose:
This course provides a comprehensive introduction to complex analysis, emphasizing applications that are useful in science and engineering.

Text:
Complex Variables and Applications, 8th edition, by Brown & Churchill, published by McGraw-Hill, ISBN: 0073051942

Topics List:

Complex numbers, polar form (Ch. 1)
Analyticity, Cauchy-Riemann equations (Ch. 2)
Elementary functions (Ch. 3)
Cauchy integral theorem and consequences (Ch. 4)

Midterm 1

Power series (Ch. 5)
Residues and poles (Ch. 6)
Applications of residues (Ch. 7)
Mapping by elementary functions (Ch. 8)
Conformal mapping (Ch. 9)

Midterm 2

Applications of conformal mapping (Ch. 10)
Schwarz-Christoffel transformation (Ch. 11)
Poisson integral, Dirichlet problem (Ch. 12)