MATHEMATICS 210A

COMPLEX ANALYSIS I


This is the first course in a two quarters study of analytic functions of a complex variable. Topics covered in the first course include the theory of analytic functions, complex integrations, singularity of analytic functions and the maximum modulus theorem.

**TOPICS**

**SUGGESTED NO. OF 50 MIN. CLASSES**

Review of complex Numbers and Topology of complex Plane .............................................. 3
(Ch. 1 and 2)

Complex numbers, topology and convergence.

Analytic Functions .................................................................................................................. 5
(Ch. 3, §§1–3)

Power series, analytic functions and mappings.

Complex Integration ............................................................................................................ 10
(Ch. 4, §§1–8)

Complex path integrals, Taylor series, Cauchy theorem and formula, counting zeros.

Singularities ......................................................................................................................... 7
(Ch. 5, §§1–3)

Classification of singularities, residues and the argument principle.

Maximal modulus theorem ................................................................................................. 5
(Ch. 6, §§1–4)

Maximal principle, Schwarz’s lemma and Hadamard’s three circles theorem.

Homework assignments will be given out weekly. Homework 20%, midterm 30%, final 50%.