

Course Title: Functions of a Complex Variable
 Course #: MATH 70300
 Day(s), Time & Location: Mondays and Wednesdays -- 9.30 AM -- 11 AM; Room TBA
 Instructor Name: Dr. Sudeb Mitra
 Contact Information: sudeb.mitra@qc.cuny.edu
 Pre-Requisites: _____
 Office Hours: MW 1 pm -- 3 PM Room 4308

Description: This is the standard graduate course on Complex Analysis. Topics to be covered are: Properties of holomorphic functions, the Cauchy theory in details (as in Chapter 10 of Rudin's "Real and Complex Analysis", Third Edition), the Maximum Modulus Principle, Schwarz lemma, Schwarz-Pick lemma and applications, introduction to hyperbolic geometry, holomorphic automorphisms of the open unit disk, of the complex plane, and of the Riemann sphere; Normal families, and the Riemann mapping theorem, Conformal mappings; Schwarz reflection; Runge's theorem; Simply connected regions.

No texts required, but here are some basic references. I will give notes in class.

1. Complex Analysis by Lars V. Ahlfors (3rd edition)
2. Complex Analysis in the spirit of Lipman Bers
by Rubi E. Rodriguez, Irwin Kra, and Jane P. Gilman (2nd edition)
3. Real and Complex Analysis by Walter Rudin (3rd edition)
4. Functions of one complex variable -- I
by John B. Conway (2nd edition)
5. Complex Analysis (Princeton Lectures in Analysis II)
by Elias M. Stein and Rami Shakarchi