

King Fahd University of Petroleum and Minerals
 Department of Mathematical Sciences
SYLLABUS
 Semester I, 2005-2006 (051)
 (Dr. Salim Messaoudi)

Course #: Math 533
Title: Complex Analysis
Textbook: Complex Analysis by Lars V. Ahlfors (Third Edition)

Objective: This course aims to strengthen the introductory concepts of complex analysis taken in the undergraduate course. By the end of this course, the student should have well understood the concepts of Analyticity of functions, complex integration, and get an idea about the conformal mappings.

Wk	Chapters	Material	Homework
1	Chapter 1	The Algebra of complex numbers and representations	
2	Chapter 2	The spherical representation Concept of Analytic functions: Limits – Continuity – Analyticity – The Cauchy-Riemann equations	
3		The Exponential, Trigonometric and Logarithmic functions.	
4	Chapter 4	Fundamental theorems	
5		Cauchy's integral Formula	
6		Local properties of Analytical functions	
7		General form of Cauchy's theorem	
8		Calculus of Residues	
9		Harmonic functions	
10	Chapter 5	Power series expansions	
11		Partial fraction and Factorization	
12-15	Chapter 6	Conformal Mapping	

Grading Policy: Homework 30%, Midterm 30%, Final 40%