MA-610 SEVERAL COMPLEX VARIABLES

Holomorphic functions: Review of 1-variable theory, Real and complex differentiability, Power series, Complex differentiable functions, Cauchy integral formula for a polydisc, Cauchy inequalities, The maximum principle.

Extension of analytic functions: Hartogs figures, Hartogs theorem, Domains of holomorphy, Holomorphic convexity, Theorem of Cartan Thullen.

Levi-convexity: The Levi form, Geometric interpretation of its signature, E.E. Levi's theorem, Connections with Kahlerian geometry, Elementary properties of plurisubharmonic functions.

Introduction to Cohomology: Definition and examples of complex manifolds. The d, ∂, $\bar{\partial}$ operators, The Poincare Lemma and the Dolbeaut Lemma, The Cousin problems, Introduction to Sheaf theory.

RECOMMENDED BOOKS:

1. J. Morrow and K. Kodaira, Complex Manifolds, Holt, Rinehart and Winston, New York, 1971.
2. L. Hormander, An Introduction to Complex Analysis in Several Variables, D. Van Nostrand, New York, 1966.
3. H. Grauert and K. Fritsche, Several Complex Variables, Springer Verlag, 1976.
4. M. Field, Several Complex Variables and Complex Manifolds, Cambridge University Press, 1982.