

*Institute of Mathematical Research**Department of Mathematics*

Lectures on Complex Manifolds*

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This course gives an introduction to basic notions on complex manifolds both on the algebraic and on the analytic sides. This will include sheaves, Čech cohomology, de Rham and Dolbeault cohomologies, Hermitian and Kähler manifolds, Hermitian holomorphic vector bundles, harmonic forms, vanishing theorems, Kodaira's Embedding Theorem. As examples of compact Kähler manifolds we will examine compact quotients of bounded domains especially bounded symmetric domains.

References:

- [GH] Griffiths, P. & Harris, J. *Principles of Algebraic Geometry*, Pure and Applied Mathematics, Wiley-Interscience Publishers, New York 1978.
- [K] Kodaira, K. *Complex Manifolds and Deformation of Complex Structures*, Grundlehren der mathematischen Wissenschaften 283, Springer-Verlag, Berlin-Heidelberg 1986.
- [M] Mok, N. *Metric Rigidity Theorems on Hermitian Locally Symmetric Manifolds*, World Scientific, Singapore-New Jersey 1989.

Date / Time:	Jan 13, 20, 27; Feb 11, 17, 24; Mar 3, 17, 24, 31 & Apr 7, 21, 28, 2011, 10:00am – 12:45pm
Place:	Room 210, Run Run Shaw Bldg., HKU

**Lectures of a graduate course MATH6202 Complex Manifolds of the joint
HKU-CUHK-HKUST Centre for Advanced Study (Mathematics)*

All are welcome