University of Illinois
Department of Mathematics
257 Altgeld Hall
333-5749

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C O U R S E D E S C R I P T I O N

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Spring 2010

MATH 595

L O C A L C O H O M O L O G Y

Prof. S. P. Dutta
10:30-11:50 Tu-Th
Altgeld Hall

This course will be a study of Local Cohomology introduced by Grothendieck and its various applications. The main topics will include: Cohen-Macaulay Rings and Modules, Injective Modules over noethierian rings, Gorenstein rings, local cohomology -- connection with dimension and depth, local duality theorem of Grothendieck, Cohomology of quasi-coherent and coherent sheaves, Serre's Theorem on coherent sheaves on projective spaces, classification of Line-bundles on P^n, Hartshorne - Lichtenbaum Theorem and Faltings Connectedness Theorem.

Prerequisite: Math 502

Text: Local Cohomology by Brodmann and Sharp, Cambridge University Press. Text is recommended.