

COURSE DESCRIPTION

FALL 2021
MATH 502

INTRODUCTION TO COMMUTATIVE ALGEBRA

Professor S. P. Dutta
9:30 – 10:50 Tu-Th

This course is intended mainly for students who are going to specialize in Commutative Algebra, Algebraic Geometry, Algebraic K-theory and Algebraic Number Theory.

In this course we will mainly focus on Noetherian rings and modules. The topics will include: Primary decomposition, Artin-Rees Lemma, Flatness, Completion, Hilbert-Samuel Polynomial, Dimension Theory, Integral extensions, Going-up and Going-down theorems, Noether's Normalization (its geometric interpretation), Regular rings and the notion of depth. We would also like to study Cohen-Macaulayness if time permits.

Prerequisite: Math500, 501

Recommended text: Commutative ring theory by H. Matsumura