
COURSE DESCRIPTION

Spring 2022

MATH 595

SMOOTH AND ETALE EXTENSIONS

Prof. S. P. Dutta

TR: 9:30 am to 10:50 am

145 Altgeld Hall

This course is intended to be a two-semester course covering several areas in commutative algebra and algebraic geometry on Smooth and Etale extensions. Our main focus will be on the following topics: Weierstrass Preparation Theorem; structure theorem for complete local rings; Zariski's Main Theorem; unramified, étale and smooth extensions and their corresponding structure theorems; Henselian Rings and Henselization; Artin's approximation theorem; Hochster's construction of big Cohen-Macaulay modules and finally Swan's exposition of Popescu's proof of Artin's conjecture on smooth extensions.

The following book covers several topics (not all) mentioned above.

Text: Birger Iversen - Generic local structure in commutative algebra--Lecture notes in Math 310, Springer Verlag, Berlin Heidelberg, New York.