

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

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## COURSE DESCRIPTION

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Spring 2019

MATH 595 SAE

SMOOTH AND ETALE EXTENSIONS

Prof. S. P. Dutta

Room:

TR from 12:30 am to 1:50 am

This is a one-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.