Math 280 - Algebraic Curves and Degenerations

Spring 2017

Instructor: Brian Osserman

Lectures: TBA

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Office Hour: TBA

Prerequisites: Familiarity with basic algebraic geometry at a level comparable to 248AB.

Textbook: None, but will follow online notes Limit linear series.

Grading: Based on homework and attendance.

Homework: Homework will consist of bringing questions and/or comments each week about the lectures and/or the online notes.

Summary

Algebraic curves are the most classical subject in algebraic geometry. After introducing motivation ranging from intrinsic geometry of curves to the geometry of moduli spaces of curves, we will focus our attention on the subject of linear series on curves, which is essentially a fancy way of saying maps from curves to projective spaces. Our main goal is to discuss the use of degeneration techniques to prove important results in the subject, but we will also discuss important auxiliary topics such as determinantal varieties. Although many of the main results were first stated in the 19th and early 20th century, the proofs took roughly a century to complete, and the techniques are still evolving today. Many of the proofs we will discuss were developed only in the past few years.

Lecture notes

The purpose of this course is to develop a set of lecture notes on the theory of limit linear series. The current draft is posted below, and updates will be posted as the quarter progresses.

Limit linear series lecture notes.