

Topics on Moduli and Deformation Theory

Yi Hu

This will be a gentle introduction to the theory of moduli and deformation theory. We will spend time on some important examples such as Quot schemes and Hilbert schemes. We may also cover moduli of vector bundles over a curve and moduli of curves. We will mention stacks (although not formally covered).

Prerequisites: It would be ideal if you have had two semester courses (such as 536A, 536B) on algebraic geometry. It may also suffice if you just have had one-semester course in AG (please talk to me if this is the case for you).

References:

Deformation Theory, Hartshorne.

Rational Curves on Projective Varieties, Kollar

Moduli of Curves, Harris and Morrison

Some survey articles in literature