

## Course 2

### Classical and virtual intersection theory

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**Abstract:**

The course assumes a basic familiarity with schemes of finite type over an algebraically closed field, as presented e.g. in Chapters 1-3 of Hartshorne's Algebraic Geometry. We will begin by a review of Intersection Theory as in chapters 1-6 of Fulton's book, including the key definition and statements but without proof.

After a brief, informal introduction to derived categories, we will sketch a definition of the cotangent complex for a morphism of schemes and then concentrate on its cutoff at  $(-1)$  and its relation to deformation theory.

The 2-category of algebraic stacks (in the sense of Artin) will be introduced in an informal way, focused on examples and intuitive understanding rather than technical detail. In the final lecture we will define the relative normal cone to a morphism and use it to recast Fulton's definition of lci pullback and extend it to the virtual case.