

# Homological algebra = linear algebra on modules

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## Abstract:

In this talk, we will talk about the linear algebra on different algebraic structures. The linear algebra on vector spaces is very classical. Among many important results, the existence of basis for finite-dimensional vector spaces is a key to simplify many problems. This, unfortunately, couldn't be generalized to other algebraic structure, like modules of a (commutative, unital) ring. When the ring is the polynomial ring, we will have many neat consequences. One of them is Hilbert's Syzygy theorem. We will first recall many definitions of algebraic structures and eventually introduce Hilbert's Syzygy theorem.

Coffee and cookies will be provided !

Talk time: 1:30-2:30 pm, November 17, 2023

Talk location: BLHSB 1.316 and in  
Zoom <https://utrgv.zoom.us/j/83585846705>

