

## Representations of quivers

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In the modern representation theory the notion of quivers and its representations are ubiquitous. This lecture series is a basic introduction to the topic of quiver representations to anyone with a small background in linear algebra. The plan of the course is the following:

### Lecture 1: Quivers and representations

In this lecture we define the notion of a quiver and of representation of quivers. We will define basic concepts such as morphisms of quiver representations, subrepresentations and quotient representations, indecomposable representations and simple representations.

### Lecture 2: The category of quiver representations

This second lecture is dedicated to study the categorical properties of quiver representations. We will introduce some basic notions of category theory. Then we will characterise the projective and injective objects of the category of quiver representations.

### Lecture 3: Quivers of finite representation type

The aim of this lecture is to understand the classification of quivers of finite type by Dynkin quivers. We will explain how to find every indecomposable representation of a Dynkin quiver using basic notions of Auslander-Reiten theory.

### Lecture 4: Path algebras and module categories

We finish this course introducing the notion of non-commutative algebras and its categories of modules. We will show that one can always construct a non-commutative algebra from a given quiver, so-called path algebra of the quiver. We finish the course speaking about admissible relations and Gabriel's theorem for finite dimensional algebras over an algebraically closed field.