

## **Abstract:**

All rings have identity elements and all modules are unital right modules, unless stated otherwise. Let  $R$  be a ring and let  $M$  be an  $R$ -module.

This research consists of two sections. In section one we introduce and recall some basic definitions and propositions which is useful to our studies. In section Two we study exact sequences, short exact sequences and split short exact sequences. Where an exact sequence is defined as a sequence, either finite or infinite, of objects and morphisms between them such that the image of one morphism equals the kernel of the next. Then we study the chain conditions (ACC, DCC, FC, Min and Max conditions) on modules which is the and the relations between them.

In mathematics, the ascending chain condition (ACC) and descending chain condition (DCC) are finiteness properties satisfied by some algebraic structures, these conditions played an important role in the development of the structure theory of commutative rings. Thus an  $R$ -module  $M$  is said to satisfy an ascending chain condition ACC (respectively descending chain condition DCC) if every ascending (respectively descending) chain of submodules of  $M$  is terminate.