Apache Scala

## Duration 40 hours

# [Introduction to Scala](https://www.knowledgehut.com/programming/scala-training#collapse-curriculum-11)

What is Scala?

Origin of Scala

Features of Scala

Why Scala?

Introducing Scala

Installing Scala

Journey – Java to Scala

First Dive – Interactive Scala

Writing Scala Scripts – Compiling Scala Programs

Scala Basics

Scala Basic Types

Defining Functions

IDE for Scala

Scala Community

# Scala Essentials

Immutability in Scala – Semicolons  
Scala Method Declarations  
Literals, Lists, Tuples, Options and Maps  
Reserved Words  
Operators  
Scala Precedence Rules  
If statements  
Scala For Comprehensions  
While Loops  
Do-While Loops  
Conditional Operators in Scala  
Pattern Matching  
Enumerations

Literal Values

Numeric Literals

Boolean Literals

Character Literals

String Literals

Symbol Literals

Function Literals

Tuples

# [Deep Dive into Functions](https://www.knowledgehut.com/programming/scala-training#collapse-curriculum-12)

Ways to define a function

Polymorphic functions

Higher order functions

Recursion

Argument passing

Object-oriented aspects of functions

Closures

Functions and Methods

Recursion in Scala

Higher Order Function introduction

Functions as Parameters

Functions as return results

Using Types to simplify function definitions

Partially Applied Functions

Currying Functions

Pas by Value v Pass By Name

Collections and Functional Programming

The map and filter functions

# Object Oriented Programming

Classes

Immutable and Mutable Fields

Methods

Default and Named Arguments

Objects

Companion Objects

Case Classes and Case Objects

Apply

Immutability and Thread Safety

Traits

Case Classes

How to define Case classes

When to use Case classes

Inheritance in OO

Scala Types and Type System

Abstract Classes

Overriding methods and fields

Super key word (extending versus overriding)

Final Keyword

Protected

Polymorphism

Introduction to Scala traits

Traits and Classes / Objects

Using Traits

Trait Inheritance

# Collections

Collections overview

Sequences and Sets

Options

Higher Order Functions

Arrays

Tuples

Lists, Sets

Maps

# Packages

What is a Package?

Nested Packages

Multiple Packages per File

Root package references

Importing

Access Modifiers

Qualified Access Modifiers

Package Objects

# Exception Handling

Traditional Exception Handling

Try-Catch blocks

Limitations with this approach

Functional Exception Handling

Recovering from Exceptions functionally

Defining custom exception types

# Testing in Scala

Testing Frameworks in Scala

ScalaTest

Functional Test Suites