

Fast Track to Scala Programming for OO / Java Developers - TTSCCL2104

Explore Scala Essentials, Functional Programming, Scala Testing, Akka Concurrency, AI with Scala, Best Practices & More

Duration: 4 Days

Skill Level: Intermediate

Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

Discover the power of Scala programming in our comprehensive, hands-on technical training course designed specifically for experienced object-oriented (OO) developers. Scala is a versatile programming language that combines the best of both OO and functional programming paradigms, making it ideal for a wide range of projects, from web applications to big data processing and machine learning. By mastering Scala, you'll be able to develop more efficient, scalable, and maintainable applications.

What You'll Learn

Overview

Scala is a modern programming language known for its power, flexibility, and ability to support both object-oriented and functional styles of development. It is used by companies building everything from high-performance backend systems to data-intensive applications, and it is gaining traction in machine learning and AI workflows due to its strong type system, expressiveness, and integration with tools like Apache Spark. If you are looking to build reliable, scalable software or expand your programming toolkit with skills that apply to real-world systems, Scala is a smart choice.

This expert-led course is designed for developers, engineers, and technical professionals who have some basic experience with OO languages, such as Java, and want to build practical Scala skills they can use right away. You will get hands-on with key concepts like higher-order functions, pattern matching, traits, mixins, for-

comprehensions, and persistent data structures. You will apply what you learn by building projects such as functional web applications using the Play Framework, database-connected systems using Slick, and modular software using dependency injection and type classes. Each concept is introduced through clear explanations followed by hands-on labs, making sure you can use these skills in your own work.

Throughout the course, you will also practice building reliable, concurrent applications using Akka and Scala Futures, and strengthen your code quality with testing strategies like property-based testing and test-driven development. You will even explore how generative AI tools like GPT can be integrated into your Scala programs to create smarter, more dynamic applications. About fifty percent of your time will be spent working through hands-on exercises, giving you the chance to explore ideas, get feedback, and leave the class ready to apply everything you learned.

Objectives

The goal of this course is to help you build real, job-ready Scala skills by giving you plenty of chances to learn by doing. Through expert guidance and hands-on projects, you will gain practical experience that you can carry into your own work right away. By the end of the course, you will be able to:

1. **Write clear and expressive Scala code** using both object-oriented and functional programming techniques to build flexible, modern applications.
2. **Use traits, mixins, and companion objects** to structure code in a way that supports reuse, modularity, and maintainability.
3. **Work confidently with functional programming concepts** like pure functions, higher-order functions, immutability, and pattern matching in real-world projects.
4. **Build functional web applications** using the Play Framework and integrate them with databases using Slick for smooth, scalable data access.
5. **Create reliable concurrent programs** using the Akka framework and Scala's Futures and Promises to handle messaging and parallel processing.
6. **Apply modern testing strategies** such as unit testing and property-based testing using ScalaTest and ScalaCheck to write safer, more dependable code.

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

Audience

This course is geared for experienced skilled Java developers, software developers, data scientists, machine learning experts or others who wish to transition their coding skills to Scala, learning how to code in Scala and apply it in a practical way. **This is not a basic class.**

Pre-Requisites

In order to be successful in this course you should possess:

- Familiarity with object-oriented programming concepts: Attendees should have a basic understanding of object-oriented programming principles, such as inheritance, encapsulation, and polymorphism, as the course builds upon these concepts while introducing Scala and functional programming.
- Experience in at least one programming language: Participants should have experience working with at least one programming language (preferably Java) to ensure they can grasp Scala's syntax and features more quickly.
- Basic understanding of data structures and algorithms: Participants should have a foundational knowledge of data structures (e.g., arrays, lists, and trees) and algorithms (e.g., searching and sorting) to better comprehend Scala's functional data structures and programming techniques.

Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We'll work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill level, interests and participation.

Introduction to Scala

- Scala features and benefits
- Comparing Scala with Java and other OO languages
- Installing Scala and setting up the development environment
- Lab: Setting up Scala Environment & Exploring Basic Features; create a simple Scala project.

Object-Oriented Programming in Scala

- Classes and objects
- Traits, mixins, and inheritance

- Companion objects and factories
- Encapsulation and polymorphism
- Lab: Building a Simple OOP Application in Scala

Functional Programming Basics

- Pure functions and referential transparency
- Higher-order functions and currying
- Immutability and persistent data structures
- Pattern matching and recursion
- Lab: Implementing Functional Programming Concepts in Scala: Develop a small application that uses functional programming concepts such as higher-order functions and pattern matching.

Having Fun with Functional Data Structures

- Lists, sets, and maps in Scala
- Folding and reducing operations
- Stream processing and lazy evaluation
- For-comprehensions
- Lab: Create an application that uses Scala's functional data structures and common operations like map, filter, and reduce.

Building Web Applications in Functional Style

- Introduction to Play Framework
- Functional web routing and request handling
- JSON handling with Play-JSON
- Middleware and functional composition
- Lab: Developing a Functional Web Application with Play

Connecting to a Database

- Introduction to Slick library
- Database configuration and setup
- Querying and updating with Slick
- Transactions and error handling
- Lab: Integrating a Database with a Scala Application

Building Scalable and Extensible Components

- Modular architecture and design patterns
- Dependency injection with MacWire
- Type classes and type-level programming

- Implicit parameters and conversions
- Lab: Develop a modular and scalable Scala application using dependency injection, type classes, and other design patterns.

Concurrency Programming & Akka

- Introduction to Akka framework and Actor model
- Actor systems and message passing
- Futures and Promises
- Supervision and fault tolerance Lab: Create a concurrent application using the Akka framework, Actor model, and Scala's Futures and Promises.

Building Confidence with Testing

- Introduction to ScalaTest and ScalaCheck
- Unit testing and property-based testing
- Test-driven development in Scala
- Mocking and integration testing
- Lab: Write unit tests and property-based tests for a Scala application using ScalaTest and ScalaCheck.

Interoperability between Scala and Java

- Calling Java code from Scala
- Using Java libraries in Scala projects
- Converting Java collections to Scala collections
- Writing Scala code that can be called from Java
- Lab: Integrating Java and Scala in a Project

Using Generative AI and GPT Technologies in Scala Programming

- Overview of GPT and generative AI
- Integrating GPT with Scala applications
- Use cases and practical examples
- Lab: Implementing a GPT-Integrated Scala Application

Follow On Courses

TTML5506-S	Machine Learning Essentials for Scala Developers
TTSK7520	Mastering Scala with Apache Spark for the Modern Data Enterprise

Related Courses

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Ways to Learn: At Trivera, we believe that Experience is Everything. Our customizable, hands-on courses are delivered live online, onsite, or in a blended format for maximum flexibility. We provide real-time expert-led training and coaching for all skill levels, from small groups to enterprise-wide programs, ensuring every learner gains the latest, most relevant job-ready skills they can apply with confidence. This course is also available for individuals or small groups on our extensive Public Schedule (see current dates below). We look forward to helping you take the next steps in your modern web developer learning journey.

For More Information

Please [contact us](#) or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.