Course description
This course gives developers an introduction to building serverless applications using AWS Lambda and other services in the AWS serverless platform.

- Course level: Fundamental
- Duration: 4 hours

Activities
This course includes presentations, knowledge checks, and a lab.

Course objectives
In this course, you will learn to:

- Identify the challenges and trade-offs of transitioning to serverless development, and make recommendations that suit your development organization and environment
- Compare and contrast available options for writing infrastructure as code, including AWS CloudFormation, AWS Amplify, AWS Serverless Application Model (AWS SAM), and AWS Cloud Development Kit (AWS CDK)
- Describe the options available for managing authentication and authorization using Amazon API Gateway and Amazon Cognito

Intended audience
This course is intended for:

- Developers who are familiar with serverless, familiar with AWS Lambda fundamentals, and have experience with development in the AWS Cloud.

Prerequisites
We recommend that attendees of this course have:

- Familiarity with the basics of AWS Cloud architecture
- An understanding of developing applications on AWS equivalent to completing the Developing on AWS classroom training
- Knowledge equivalent to completing the following serverless digital trainings: AWS Lambda Foundations and Amazon API Gateway for Serverless Applications
Course outline

Welcome and introduction
  - Introduction to the application you will build
  - Access to course resources

Thinking Serverless
  - Best practices for building modern serverless applications
  - Event-driven design
  - AWS services that support event-driven serverless applications

API-Driven Development and Synchronous Event Sources
  - Characteristics of standard request/response API-based web applications
  - How Amazon API Gateway fits into serverless applications
  - High-level comparison of API types (REST/HTTP, WebSocket, GraphQL)

Introduction to Authentication, Authorization, and Access Control
  - Authentication vs. Authorization
  - Options for authenticating to APIs using API Gateway
  - Amazon Cognito in serverless applications
  - Amazon Cognito user pools vs. federated identities

Serverless Deployment Frameworks
  - Overview of imperative vs. declarative programming for infrastructure as code
  - Comparison of CloudFormation, AWS CDK, Amplify, and AWS SAM frameworks
  - Features of AWS SAM and the AWS SAM CLI for local emulation and testing

Hands-On Lab: Deploying a Simple Serverless Application