



## Developing Serverless Solutions on AWS

This course gives developers exposure to and practice with best practices for building serverless applications using AWS Lambda and other services in the AWS serverless platform. You will use AWS frameworks to deploy a serverless application in hands-on labs that progress from simpler to more complex topics. You will use AWS documentation throughout the course to develop authentic methods for learning and problem-solving beyond the classroom.

### Course Contents

- Module 0: Introduction
- Module 1: Thinking Serverless
- Module 2: API-Driven Development and Synchronous Event Sources
- Module 3: Introduction to Authentication, Authorization, and Access Control
- Module 4: Serverless Deployment Frameworks
- Module 5: Using Amazon EventBridge and Amazon SNS to Decouple Components
- Module 6: Event-Driven Development Using Queues and Streams
- Module 7: Writing Good Lambda Functions
- Module 8: Step Functions for Orchestration
- Module 9: Observability and Monitoring
- Module 10: Serverless Application Security
- Module 11: Handling Scale in Serverless Applications
- Module 12: Automating the Deployment Pipeline

You have access to the labs for another 14 days after the course. This way you can repeat exercises or deepen them individually.

**E-Book** You will receive the original course documentation by Amazon Web Services as an e-book.

### Target Group

This course is intended for:

- Developers who have some familiarity with serverless and 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

### This Course in the Web



You can find the up-to-date information and options for ordering under the following link:

[www.expertech-training.com/go/AWDS](http://www.expertech-training.com/go/AWDS)

### Reservation

On our Website, you can reserve a course seat for 7 days free of charge and in a non-committal manner. This can also be done by phone under +49 6074/4868-0.

### Guaranteed Course Dates

To ensure reliable planning, we are continuously offering a wide range of guaranteed course dates.

### Your Tailor-Made Course!

We can precisely customize this course to your project and the corresponding requirements.

Training	Prices, excl. of V.A.T.	
<b>Classes in Germany</b>	<b>3 Days</b>	<b>€ 1,995</b>
<b>Online Training</b>	<b>3 Days</b>	<b>€ 1,995</b>
<b>Date/course venue</b>	<b>Course language German</b>	
02/07-04/07/24	26/08-28/08/24	
02/07-04/07/24	26/08-28/08/24	

Status 04/23/2024



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<b>Module 0: Introduction</b>	EventBridge	The three pillars of observability
Introduction to the application you will build	Try-it-out exercise: Configure an Amazon SNS topic with filtering	Amazon CloudWatch Logs and Logs Insights
Access to course resources (Student Guide, Lab Guide, and Online Course Supplement)	<b>Module 6: Event-Driven Development Using Queues and Streams</b>	Writing effective log files
<b>Module 1: Thinking Serverless</b>	Development considerations when using polling event sources to trigger Lambda	Try-it-out exercise: Interpreting logs
Best practices for building modern serverless applications	functions	Using AWS X-Ray for observability
Event-driven design	Distinctions between queues and streams as event sources for Lambda	Try-it-out exercise: Enable X-Ray and interpret X-Ray traces
AWS services that support event-driven serverless applications	Selecting appropriate configurations when using Amazon Simple Queue Service (Amazon	CloudWatch metrics and embedded metrics format
<b>Module 2: API-Driven Development and Synchronous Event Sources</b>	SQS) or Amazon Kinesis Data Streams as an event source for Lambda	Try-it-out exercise: Metrics and alarms
Characteristics of standard request/response API-based web applications	Try-it-out exercise: Configure an Amazon SQS queue with a dead-letter queue as a	Hands-On Lab 3: Workflow Orchestration Using AWS Step Functions
How Amazon API Gateway fits into serverless applications	Lambda event source	Hands-On Lab 4: Observability and Monitoring
Try-it-out exercise: Set up an HTTP API endpoint integrated with a Lambda function	Hands-On Lab 1: Deploying a Simple Serverless Application	<b>Module 10: Serverless Application Security</b>
High-level comparison of API types (REST/HTTP, WebSocket, GraphQL)	Hands-On Lab 2: Message Fan-Out with Amazon EventBridge	Security best practices for serverless applications
<b>Module 3: Introduction to Authentication, Authorization, and Access Control</b>	<b>Module 7: Writing Good Lambda Functions</b>	Applying security at all layers
Authentication vs. Authorization	How the Lambda lifecycle influences your function code	API Gateway and application security
Options for authenticating to APIs using API Gateway	Best practices for your Lambda functions	Lambda and application security
Amazon Cognito in serverless applications	Configuring a function	Protecting data in your serverless data stores
Amazon Cognito user pools vs. federated identities	Function code, versions and aliases	Auditing and traceability
<b>Module 4: Serverless Deployment Frameworks</b>	Try-it-out exercise: Configure and test a Lambda function	<b>Module 11: Handling Scale in Serverless Applications</b>
Overview of imperative vs. declarative programming for infrastructure as code	Lambda error handling	Scaling considerations for serverless applications
Comparison of CloudFormation, AWS CDK, Amplify, and AWS SAM frameworks	Handling partial failures with queues and streams	Using API Gateway to manage scale
Features of AWS SAM and the AWS SAM CLI for local emulation and testing	<b>Module 8: Step Functions for Orchestration</b>	Lambda concurrency scaling
<b>Module 5: Using Amazon EventBridge and Amazon SNS to Decouple Components</b>	AWS Step Functions in serverless architectures	How different event sources scale with Lambda
Development considerations when using asynchronous event sources	Try-it-out exercise: Step Functions states	<b>Module 12: Automating the Deployment Pipeline</b>
Features and use cases of Amazon EventBridge	The callback pattern	The importance of CI/CD in serverless applications
Try-it-out exercise: Build a custom EventBridge bus and rule	Standard vs. Express Workflows	Tools in a serverless pipeline
Comparison of use cases for Amazon Simple Notification Service (Amazon SNS) vs.	Step Functions direct integrations	AWS SAM features for serverless deployments
	Try-it-out exercise: Troubleshooting a Standard Step Functions workflow	Best practices for automation
	<b>Module 9: Observability and Monitoring</b>	Course wrap-up
		Hands-On Lab 5: Securing Serverless Applications
		Hands-On Lab 6: Serverless CI/CD on AWS

