

# MLOps Engineering on AWS

## Course Benefits & Agenda



**Overview**

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**Course Benefits**

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**Agenda**

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## Overview

This course builds upon and extends the DevOps practice prevalent in software development to build, train, and deploy machine learning (ML) models. The course stresses the importance of data, model, and code to successful ML deployments. It will demonstrate the use of tools, automation, processes, and teamwork in addressing the challenges associated with handoffs between data engineers, data scientists, software developers, and operations. The course will also discuss the use of tools and processes to monitor and take action when the model prediction in production starts to drift from agreed-upon key performance indicators.

## Course Benefits

This course teaches you how to:

- Describe machine learning operations
- Understand the key differences between DevOps and MLOps
- Describe the machine learning workflow
- Discuss the importance of communications in MLOps
- Explain end-to-end options for automation of ML workflows
- Build an automated ML process that retrains the model based on change(s) to the model code
- Identify elements and important steps in the deployment process
- Describe items that might be included in a model package, and their use in training or inference
- Recognize Amazon SageMaker options for selecting models for deployment, including support for ML frameworks and built-in algorithms or bring-your-own-models
- Differentiate scaling in machine learning from scaling in other applications
- Determine when to use different approaches to inference
- Discuss deployment strategies, benefits, challenges, and typical use cases

- Describe the challenges when deploying machine learning to edge devices
- Recognize important Amazon SageMaker features that are relevant to deployment and inference
- Describe why monitoring is important
- Detect data drifts in the underlying input data
- Demonstrate how to monitor ML models for bias
- Explain how to monitor model resource consumption and latency
- Discuss how to integrate human-in-the-loop reviews of model results in production

## Agenda

### Day 1

Module	Topic
Module 1	Introduction to MLOps
Module 2	MLOps Development
Lab 1	Bring your own algorithm to an MLOps pipeline
Lab 2	Code and serve your ML model with AWS CodeBuild

### Day 2

Module	Topic
Module 3	MLOps Deployment
Lab 3	Deploy your model to production
Lab 4	Conduct A/B testing

### Day 3

Module	Topic
Module 4	MLOps Deployment
Lab 5	Troubleshoot your pipeline
Lab 5	Monitor your ML model
Module 5	Wrap-up