# MLOps Engineering on AWS

## Duration: 3 Days  Course Code: GK7395

## Overview:

**This course builds upon and extends the DevOps methodology prevalent in software development to build, train, and deploy machine learning (ML) models.**
The course is based on the four-level MLOPs maturity framework. The course focuses on the first three levels, including the initial, repeatable, and reliable levels. The course stresses the importance of data, model, and code to successful ML deployments. It demonstrates 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 also discusses the use of tools and processes to monitor and take action when the model prediction in production drifts from agreed-upon key performance indicators.
**- Course level:** Intermediate
**- Duration:** 3 days

*Updated August 2026*

## Target Audience:

**This course is intended for:**
- MLOps engineers who want to productionize and monitor ML models in the AWS cloud
- DevOps engineers who will be responsible for successfully deploying and maintaining ML models in production

## Objectives:

- **In this course, you will learn to:**
- Explain the benefits of MLOps
- Compare and contrast DevOps and MLOps
- Evaluate the security and governance requirements for an ML use case and describe possible solutions and mitigation strategies
- Set up experimentation environments for MLOps with Amazon SageMaker
- Explain best practices for versioning and maintaining the integrity of ML model assets (data, model, and code)
- Describe three options for creating a full CI/CD pipeline in an ML context
- Recall best practices for implementing automated packaging, testing and deployment. (Data/model/code)
- Demonstrate how to monitor ML based solutions
- Demonstrate how to automate an ML solution that tests, packages, and deploys a model in an automated fashion; detects performance degradation; and re-trains the model on top of newly acquired data

## Prerequisites:

**We recommend that attendees of this course have:**

- AWS Technical Essentials (classroom or digital)
- DevOps Engineering on AWS, or equivalent experience
- Practical Data Science with Amazon SageMaker, or equivalent experience

## Testing and Certification

None

## Follow-on-Courses:

- GK0630 - Practical Data Science with Amazon SageMaker
- GK1979 - DevOps Engineering on AWS
- GK910029 - Machine Learning Engineering on AWS

## Content:

Day 1

Module 1: Introduction to MLOps

- Processes
- People
- Technology
- Security and governance
- MLOps maturity model

Module 2: Initial MLOps: Experimentation Environments in SageMaker Studio

- Bringing MLOps to experimentation
- Setting up the ML experimentation environment
- Demonstration: Creating and Updating a Lifecycle Configuration for SageMaker Studio
- Hands-On Lab: Provisioning a SageMaker Studio Environment with the AWS Service Catalog
- Workbook: Initial MLOps

Module 3: Repeatable MLOps: Repositories

- Managing data for MLOps
- Version control of ML models
- Code repositories in ML

Module 4: Repeatable MLOps: Orchestration

- ML pipelines
- Demonstration: Using SageMaker Pipelines to Orchestrate Model Building Pipelines

Day 2

Module 4: Repeatable MLOps: Orchestration (continued)

- End-to-end orchestration with AWS Step Functions
- Hands-On Lab: Automating a Workflow with Step Functions
- End-to-end orchestration with SageMaker Projects
- Demonstration: Standardizing an End-to-End ML Pipeline with SageMaker Projects
- Using third-party tools for repeatability
- Demonstration: Exploring Human-in-the-Loop During Inference
- Governance and security
- Demonstration: Exploring Security Best Practices for SageMaker
- Workbook: Repeatable MLOps

Module 5: Reliable MLOps: Scaling and Testing

- Scaling and multi-account strategies
- Testing and traffic-shifting
- Demonstration: Using SageMaker Inference Recommender
- Hands-On Lab: Testing Model Variants

Day 3

Module 5: Reliable MLOps: Scaling and Testing (continued)

- Hands-On Lab: Shifting Traffic
- Workbook: Multi-account strategies

Module 6: Reliable MLOps: Monitoring

- The importance of monitoring in ML
- Hands-On Lab: Monitoring a Model for Data Drift
- Operations considerations for model monitoring
- Remediating problems identified by monitoring ML solutions
- Workbook: Reliable MLOps
- Hands-On Lab: Building and Troubleshooting an ML Pipeline

## Additional Information:

**Activities:**
This course includes presentations, hands-on labs, demonstrations, knowledge checks, and workbook activities.

## Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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