

Course description

Machine Learning (ML) Engineering on Amazon Web Services (AWS) is a 3-day intermediate course designed for ML professionals seeking to learn machine learning engineering on AWS. Participants learn to build, deploy, orchestrate, and operationalize ML solutions at scale through a balanced combination of theory, practical labs, and activities. Participants will gain practical experience using AWS services such as Amazon SageMaker AI and analytics tools such as Amazon EMR to develop robust, scalable, and production-ready machine learning applications.

- Course level: Intermediate
- Duration: 3 day

Activities

This course includes presentations, hands-on labs, demonstrations, and group exercises.

Course objectives

In this course, you will learn to do the following:

- Explain ML fundamentals and its applications in the AWS Cloud.
- Process, transform, and engineer data for ML tasks by using AWS services.

- Select appropriate ML algorithms and modeling approaches based on problem requirements and model interpretability.
- Design and implement scalable ML pipelines by using AWS services for model training, deployment, and orchestration.
- Create automated continuous integration and delivery (CI/CD) pipelines for ML workflows.
- Discuss appropriate security measures for ML resources on AWS.
- Implement monitoring strategies for deployed ML models, including techniques for detecting data drift.

Intended audience

This course is designed for professionals who are interested in building, deploying, and operationalizing machine learning models on AWS. This could include current and in-training machine learning engineers who might have little prior experience with AWS. Other roles that can benefit from this training are DevOps engineer, developer, and SysOps engineer.

Prerequisites

We recommend that attendees of this course have the following:

- Familiarity with basic machine learning concepts
- Working knowledge of Python programming language and common data science libraries such as NumPy, Pandas, and Scikit-learn
- Basic understanding of cloud computing concepts and familiarity with AWS
- Experience with version control systems such as Git (beneficial but not required)

Course outline

Day 1

Module 0: Course Introduction
Module 1: Introduction to Machine Learning (ML) on AWS

- Topic A: Introduction to ML
- Topic B: Amazon SageMaker AI
- Topic C: Responsible ML

Module 2: Analyzing Machine Learning (ML) Challenges

- Topic A: Evaluating ML business challenges
- Topic B: ML training approaches
- Topic C: ML training algorithms

Module 3: Data Processing for Machine Learning (ML)

- Topic A: Data preparation and types
- Topic B: Exploratory data analysis
- Topic C: AWS storage options and choosing storage

Module 4: Data Transformation and Feature Engineering

- Topic A: Handling incorrect, duplicated, and missing data
- Topic B: Feature engineering concepts
- Topic C: Feature selection techniques
- Topic D: AWS data transformation services
- Lab 1: Analyze and Prepare Data with Amazon SageMaker Data Wrangler and Amazon EMR
- Lab 2: Data Processing Using SageMaker Processing and the SageMaker Python SDK

Day 2

Module 5: Choosing a Modeling Approach

- Topic A: Amazon SageMaker AI built-in algorithms
- Topic B: Amazon SageMaker Autopilot
- Topic C: Selecting built-in training algorithms
- Topic D: Model selection considerations
- Topic E: ML cost considerations

Module 6: Training Machine Learning (ML) Models

- Topic A: Model training concepts
- Topic B: Training models in Amazon SageMaker AI
- Lab 3: Training a model with Amazon SageMaker AI

Module 7: Evaluating and Tuning Machine Learning (ML) models

- Topic A: Evaluating model performance
- Topic B: Techniques to reduce training time
- Topic C: Hyperparameter tuning techniques
- Lab 4: Model Tuning and Hyperparameter Optimization with Amazon SageMaker AI

Module 8: Model Deployment Strategies

- Topic A: Deployment considerations and target options
- Topic B: Deployment strategies
- Topic C: Choosing a model inference strategy
- Topic D: Container and instance types for inference
- Lab 5: Shifting Traffic

Day 3

Module 9: Securing AWS Machine Learning (ML) Resources

- Topic A: Access control
- Topic B: Network access controls for ML resources
- Topic C: Security considerations for CI/CD pipelines

Module 10: Machine Learning Operations (MLOps) and Automated Deployment

- Topic A: Introduction to MLOps
- Topic B: Automating testing in CI/CD pipelines
- Topic C: Continuous delivery services
- Lab 6: Using Amazon SageMaker Pipelines and the Amazon SageMaker Model Registry with Amazon SageMaker Studio

Module 11: Monitoring Model Performance and Data Quality

- Topic A: Detecting drift in ML models
- Topic B: SageMaker Model Monitor
- Topic C: Monitoring for data quality and model quality
- Topic D: Automated remediation and troubleshooting
- Lab 7: Monitoring a Model for Data Drift

Module 12: Course Wrap-up

cloudthat

Your course overview ends here.

But your cloud journey doesn't!

Unlock advanced training and certification pathways with **CloudThat.**



About CloudThat

Established in 2012, CloudThat is an award-winning company and the first in India to offer cloud training and consulting services for individuals and enterprises worldwide. Recently, it won Google Cloud's New Training Partner of the Year Award for 2025, becoming the first company in the world in 2025 to hold awards from all three major cloud giants: AWS, Microsoft, and Google. CloudThat notably won consecutive AWS Training Partner of the Year (APJ) awards in 2023 and 2024 and the Microsoft Training Services Partner of the Year Award in 2024, bringing its total award count to an impressive 12 awards in the last 8 years.

CloudThat specializes in Cloud Migration, Data Platforms, DevOps, IoT, and cutting-edge technologies like Gen AI & AI/ML. As a Microsoft Solutions Partner, AWS Premier Tier Training Partner, Google Cloud Platform Partner, and collaborator with leading organizations like HPE, Oracle, Nvidia and Databricks, CloudThat has trained over 850,000 professionals across 600+ cloud certifications, empowering students and professionals worldwide to advance their skills and careers.

To know more about our cloud certification training, email at sales@cloudthat.com or call us at +91-8880002200 or +1-8555588830 for those from outside India.