

**Practical Data Science with Amazon SageMaker**

**Course Number:** AWS-134  
**Duration:** 1 day

**Overview**

This live, online or on-site Data Science with Amazon SageMaker training course teaches attendees how to solve a real-world use case with Machine Learning (ML) and produce actionable results using Amazon SageMaker. Participants are guided through the stages of a typical data science process for ML from analyzing and visualizing a dataset to preparing the data. Students also learn practical aspects of model building, training, tuning, and deployment with Amazon SageMaker.

Accelebrate is an AWS Training Partner (ATP) and this hands-on official AWS Classroom Training course is taught by an accredited Amazon Authorized Instructor (AAI).

**Prerequisites**

* Familiarity with Python programming language
* Basic understanding of Machine Learning

**Materials**

All Amazon SageMaker training students will receive comprehensive courseware.

**Software Needed on Each Student PC**

A modern web browser and an Internet connection free of restrictive firewalls, so that the student can connect by SSH or Remote Desktop (RDP) into AWS virtual machines.

**Objectives**

* Prepare a dataset for training
* Train and evaluate a Machine Learning model
* Automatically tune a Machine Learning model
* Prepare a Machine Learning model for production
* Think critically about Machine Learning model results

**Outline**

* Introduction to Machine Learning (ML)
  + Types of ML
  + Job Roles in ML
  + Steps in the ML pipeline
* Introduction to Data Prep and SageMaker
  + Training and test dataset defined
  + Introduction to SageMaker
  + SageMaker console
  + Launching a Jupyter notebook
* Problem Formulation and Dataset Preparation
  + Business challenge: Customer churn
  + Review customer churn dataset
* Data Analysis and Visualization
  + Loading and visualizing your dataset
  + Relating features to target variables
  + Relationships between attributes
  + Cleaning the data
* Training and Evaluating a Model
  + Types of algorithms
  + XGBoost and SageMaker
  + Training the data
  + Finishing the estimator definition
  + Setting hyperparameters
  + Deploying the model
  + Hyperparameter tuning with SageMaker
  + Evaluating model performance
* Automatically Tune a Model
  + Automatic hyperparameter tuning with SageMaker
  + Tuning jobs
* Deployment/Production Readiness
  + Deploying a model to an endpoint
  + A/B deployment for testing
  + Auto Scaling
  + Configure and test auto-scaling
  + Check hyperparameter tuning job
  + AWS Auto Scaling
  + Practical Data Science with
  + Amazon SageMaker
  + AWS Classroom Training
  + Set up AWS Auto Scaling
* Relative Cost of Errors
  + Cost of various error types
  + Demo: Binary classification cutoff
* Amazon SageMaker Architecture and Features
  + Accessing Amazon SageMaker notebooks in a VPC
  + Amazon SageMaker batch transforms
  + Amazon SageMaker Ground Truth
  + Amazon SageMaker Neo