

**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