

**Amazon SageMaker Studio for Data Scientists**

**Course Number:** AWS-180
**Duration:** 4 days

**Overview**

This Amazon SageMaker Studio for Data Scientists training course teaches experienced data scientists how to build, train, and deploy machine learning (ML) models for any use case. Attendees learn how to use Amazon SageMaker Studio and the Amazon SageMaker Python SDK to build a complete tabular data machine learning (ML) application. Participants immediately boost productivity at every step of the machine learning lifecycle to get the most out of their AI models.

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**

In addition to their 1-year on-the-job experience building data models, participants must have taken the following courses or have the equivalent knowledge:

* [AWS Technical Essentials](file:////training/aws-technical-essentials)
* [The Machine Learning Pipeline on AWS](file:////training/ml-pipeline-on-aws)
* [Deep Learning on AWS](file:////training/aws-deep-learning)

**Materials**

All AWS training students receive comprehensive courseware.

**Software Needed on Each Student PC**

A modern web browser and an Internet connection that allows connections by SSH or Remote Desktop (RDP) into AWS virtual machines.

**Objectives**

* Collect, clean, visualize, analyze, and transform data
* Develop, tune, and evaluate an ML model
* Prepare, build, train, and deploy a model using a tabular dataset
* Build an end-to-end tabular data ML project with SageMaker Studio and the SageMaker Python SDK
* Create, automate, and manage end-to-end ML workflows
* Configure a SageMaker model monitor solution

**Outline**

* Introduction
* Amazon SageMaker Setup and Navigation
	+ Launch SageMaker Studio from the AWS Service Catalog
	+ Navigate the SageMaker Studio UI
	+ SageMaker UI Walkthrough
	+ Launch SageMaker Studio from AWS Service Catalog
* Data Processing
	+ Use Amazon SageMaker Studio to collect, clean, visualize, analyze, and transform data
	+ Set up a repeatable process for data processing.
	+ Use SageMaker to validate that collected data is ML ready
	+ Detect bias in collected data and estimate baseline model accuracy
	+ Analyze and Prepare Data Using SageMaker Data Wrangler
	+ Analyze and Prepare Data at Scale Using Amazon EMR
	+ Data Processing Using SageMaker Processing and the SageMaker Python SDK
	+ Feature Engineering Using SageMaker Feature Store
* Model Development
	+ Use Amazon SageMaker Studio to develop, tune, and evaluate an ML model
	+ Fine-tune ML models using automatic hyperparameter optimization capability
	+ Use SageMaker Debugger to surface issues during model development
	+ Autopilot
	+ Track Iterations of Training and Tuning Models Using SageMaker Experiments
	+ Analyze, Detect, and Set Alerts Using SageMaker Debugger
	+ Identify Bias Using SageMaker Clarify
* Deployment and Inference
	+ Use Model Registry to create a model group
	+ Design and implement a deployment solution that meets inference use case requirements.
	+ Create, automate, and manage end-to-end ML workflows using Amazon SageMaker Pipelines
	+ Inferencing with SageMaker Studio
	+ Using SageMaker Pipelines and the SageMaker Model Registry with SageMaker Studio
* Monitoring
	+ Configure a SageMaker Model Monitor solution
	+ Create a monitoring schedule with a predefined interval
* Conclusion