



Course Name: AWS Data Analytics Specialist Professional Certification Course

Course Overview

This course provides a detailed introduction to AWS Data Analytics services, focusing on building, managing, and securing data pipelines. Through hands-on labs and real-world projects, learners gain the skills to design and implement data lakes, process real-time data, optimize data warehousing, and create interactive visualizations. The program prepares participants for the AWS Certified Data Analytics - Specialty certification while equipping them with practical expertise to handle end-to-end data workflows on AWS.

Course Type

Intermediate-level course designed for professionals transitioning into data analytics or enhancing their AWS expertise.

Course Objectives

- Understand the key AWS services for data analytics and their roles in building scalable solutions.
- Build data lakes and optimize them for efficient querying.
- Process real-time data streams and implement data warehouses for analytics.
- Create interactive dashboards to visualize insights and communicate results.
- Ensure data security and governance while managing AWS analytics services.
- Prepare for the AWS Certified Data Analytics - Specialty certification.

What You'll Learn?

- The fundamentals of AWS analytics services, including S3, Glue, Athena, Redshift, Kinesis, and QuickSight.
- How to build, query, and optimize data lakes and warehouses for big data applications.
- Techniques for processing real-time data streams and implementing robust analytics pipelines.
- Best practices for securing and governing data analytics workflows on AWS.
- Hands-on experience through labs and a capstone project to build an end-to-end data analytics solution.
- Certification preparation with mock exams and practice questions.

**Duration**

40 hours

Requirements

- A computer with a reliable internet connection.
- Access to an AWS account (Free Tier recommended for hands-on labs).
- Familiarity with data concepts such as ETL, data lakes, and dashboards.

Pre-requisites

- Basic knowledge of AWS services and cloud computing.
- Some experience with data analytics tools or SQL is beneficial but not mandatory.

Target Audience

- Data engineers, data analysts, and IT professionals looking to build expertise in AWS data analytics.
- Cloud architects and developers interested in designing data pipelines and analytics workflows.
- Professionals preparing for the AWS Certified Data Analytics - Specialty certification.
- Organizations and individuals aiming to leverage AWS for big data processing and visualization.

Curriculum

Module 1: Introduction to AWS Data Analytics

- Overview of AWS Analytics services
- Understanding data analytics workflows
- Setting up AWS accounts and analytics services
- Introduction to S3 as a data lake foundation

Lab:

- Create an S3 bucket and load sample datasets

Module 2: Building and Managing Data Lakes

- What is a data lake?
- Using AWS Glue for data cataloging and ETL (Extract, Transform, Load)
- Querying data lakes with Amazon Athena
- Partitioning and optimizing data in data lakes

Lab:

- Build a data lake with AWS Glue and Athena

Module 3: Data Warehousing with Amazon Redshift

- Introduction to Amazon Redshift
- Setting up a Redshift cluster
- Data ingestion methods (S3 to Redshift)
- Redshift Spectrum for querying data lakes
- Optimizing Redshift performance

Lab:

- Load data into Redshift and perform queries

Module 4: Real-Time Data Processing with Amazon Kinesis

- Introduction to real-time analytics

- Using Amazon Kinesis Streams and Firehose
- Data transformation with Kinesis Data Analytics
- Real-time use cases (log analysis, clickstream analytics)

Lab:

- Build a real-time streaming pipeline using Kinesis

Module 5: Data Visualization with Amazon QuickSight

- Introduction to QuickSight
- Connecting QuickSight to data sources (S3, Redshift, Athena)
- Building dashboards and visualizations
- Sharing insights and embedding dashboards

Lab:

- Create interactive dashboards using QuickSight

Module 6: Data Security and Governance

- AWS Identity and Access Management (IAM) for analytics services
- Encrypting data at rest and in transit (KMS, S3 encryption)
- Monitoring and auditing with AWS CloudTrail and CloudWatch
- Implementing data governance policies

Lab:

- Secure a data pipeline with IAM and encryption

Module 7: Capstone Project - End-to-End Data Analytics Pipeline

- Design and implement a complete analytics pipeline:
- Build a data lake in S3
- Process real-time data with Kinesis
- Store processed data in Redshift
- Visualize insights with QuickSight



Deliverables:

- Submit the project for evaluation with a presentation

Module 8: Exam Prep and Certification Guidance

- Recap of core concepts
- Practice exam questions for AWS Data Analytics Specialty Certification
- Certification exam logistics and tips

Lab:

- Mock exam with hands-on scenarios