Course Outline

AWS Academy Data Analytics

Course Version

This course outline applies version 1.0 of AWS Academy Data Analytics in English.

Description

AWS Academy Data Analytics is a series of lab exercises that teach students how to conduct Big Data analysis with practical, real-world examples. Students will learn how to analyze extremely large data sets, and to create visual representations of that data, using a case-study approach. The labs and learning resources are designed to supplement an institution's existing Big Data and data analytics courses and provide students with hands-on experience working with data at scale. Geared toward students interested in pursuing careers in data analysis, AWS Academy Data Analytics requires a strong foundation in IT concepts and skills, and it contains seven-and-a-half hours of content.

Course Objectives

AWS Academy Data Analytics teaches students how to:

- *Describe big data analytical concepts*
- *Ingest, store, and secure data*
- *Query a data store with manual schema specification*
- *Query a data store with automated schema generation*
- *Load and query data in a data warehouse*
- *Visualize structured and unstructured data*
- *Automate loading data into a data warehouse*
- *Analyze unstructured data*
- *Analyze IoT data*

Duration

Approximately 7.5 hours.

Intended Audience

Undergraduate, graduate, or professional students studying Information Science, Computing, Business Analytics, or a similar degree program.

Student Prerequisites

AWS Academy Data Analytics requires a strong foundation in IT concepts and skills, such as those that students gain through the AWS Academy Cloud Foundations course. Students may benefit from completing the free AWS Data Analytics Fundamentals online training.

Before taking this intermediate course, students should be able to:

- *Describe the difference between an online transaction processing (OLTP) system and an online analytical processing (OLAP) system.*
- *Describe the differences between a database and a data warehouse.*
- *Design a set of data objects and table relations for a simple data set.*

- *Write simple data retrieval and manipulation queries with SQL.*
- *Describe the five V's of big data (Velocity, Volume, Value, Variety, and Veracity).*
- *List common use cases and domains for big data solutions.*
- *Normalize database design.*

Students are not expected to have programming experience.

Delivery Methods

Learning resources are provided for students to complete lab exercises for in-person or online synchronous and asynchronous delivery of existing big data lectures and courses.

Educator Prerequisites

Please see the educator accreditation process below.

Educator Accreditation

Educators can become accredited to *teach AWS Academy Data Analytics* in two ways. Those who hold an associate-level AWS Academy accreditation simply have to complete the labs. Educators can also pass the AWS Certified Big Data — Specialty exam, complete the labs, and pass a technical validation.

Learning Resources

- *Lab exercises*

Course Contents

Lab Exercises		Duration
Lab 1	*Ingesting Data into Amazon S3*	*30 min.*
Lab 2	*Querying Amazon S3 Data Using Amazon Athena*	*60 min.*
Lab 3	*Transforming Data Using Amazon S3, AWS Glue, and Amazon Athena*	*60 min.*
Lab 4	*Loading the Amazon Redshift Cluster with Data and Querying*	*60 min.*
Lab 5	*Delivering Insights using Amazon QuickSight*	*60 min.*
Lab 6	*Setting up and Executing a Data Pipeline Job to Load Data into Amazon S3*	*60 min.*
Lab 7	*Streaming Data with AWS Kinesis Firehose, Amazon Elasticsearch Service, and Kibana*	*60 min.*
Lab 8	*Using AWS IoT Analytics for Data Ingestion and Analysis*	*60 min.*

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Learning Objectives

Lab Exercise	Learning Objectives
Lab 1 *Ingesting Data Into Amazon S3*	*Accessing Amazon S3 in the console* *Creating an Amazon S3 bucket* *Securing an Amazon S3 bucket* *Loading data into an Amazon S3 bucket*
Lab 2 *Querying Amazon S3 Data Using Amazon Athena*	*Creating an Amazon S3 bucket* *Loading data into an Amazon S3 bucket* *Querying data with Amazon Athena*
Lab 3 *Transforming Data Using Amazon S3, AWS Glue, and Amazon Athena*	*Creating an Amazon S3 bucket* *Uploading large data files* *Inferring a schema from a data set with AWS Glue* *Querying data with Amazon Athena* *Uploading large data files partitioned by date*
Lab 4 *Loading the Amazon Redshift Cluster with Data and Querying*	*Creating an Amazon Redshift Cluster* *Loading data into an Amazon S3 bucket* *Creating a table in Amazon Redshift* *Loading data into Amazon Redshift from Amazon S3* *Querying data in Amazon Redshift*
Lab 5 *Delivering Insights using Amazon QuickSight*	*Developing a storyboard in Amazon QuickSight to support a business decision*
Lab 6 *Setting up and Executing a Data Pipeline Job to Load Data into Amazon S3*	*Creating an Amazon Redshift cluster* *Creating a data pipeline to load data from Amazon S3 to Amazon Redshift using templates* *Creating Amazon QuickSight visualizations*
Lab 7 *Streaming Data with AWS Kinesis Firehose, Amazon Elasticsearch Service, and Kibana*	*Creating an AWS Kinesis firehose delivery stream* *Configuring an Amazon Elasticsearch Service cluster* *Connecting AWS Kinesis firehose to deliver logs to Amazon Elasticsearch Service* *Configuring Kibana indexes* *Visualizing streaming data*
Lab 8 *Using AWS IoT Analytics for Data Ingestion and Analysis*	*Collecting data* *Processing data* *Storing data* *Analyzing data* *Visualizing data*