Course Outline

AWS Academy Cloud Foundations (ACF)

Description

AWS Academy Cloud Foundations is intended for students who seek an overall understanding of cloud computing concepts, independent of specific technical roles. It provides a detailed overview of cloud concepts, AWS core services, security, architecture, pricing, and support.

Intended Audience

This introductory (Level 100) course is intended for AWS Academy member institutions.

Prerequisites

This is an entry-level course, but it assumes the following:

- General IT technical knowledge
- General IT business knowledge

Delivery Method

This course is delivered through a mix of:

- Instructor-Led Training (ILT)
- Video
- LMS-hosted content
- Hands-On Labs

Hands-On Activity

This course allows you to test new skills and apply knowledge to your working environment through a variety of practical exercises.

Duration

Approximately 20 Hours. AWS Academy Cloud Foundations must be delivered over a period of not less than two weeks.

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Section	Content
Module 1	**Cloud Concepts** • Introduction to the Cloud • Introduction to the AWS Cloud
Module 2	**Core Services** • Overview of Services and Categories • Introduction to the AWS Global Infrastructure • Introduction to Amazon VPC • Introduction to Security Groups • Introduction to Amazon EC2 • Introduction to Amazon EBS • Introduction to Amazon S3 • Introduction to AWS Database Solutions
Module 3	**AWS Security** • Introduction to AWS Security • The AWS Shared Responsibility Model • AWS Access Control and Management • AWS Security Compliance Programs • AWS Security Resources
Module 4	**AWS Architecting** • Introduction to the Well Architected Framework • Reference Architecture: Fault Tolerance and High Availability • Reference Architecture: Web Hosting
Module 5	**Cloud Economics** • Fundamentals of Pricing • Core Services Pricing Details • The TCO Calculator Overview • Monthly Cost Calculator Overview • AWS Support Plans Overview

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Duration Details

Total Course Duration when delivered by an educator: 28.5 hrs.
Total eLearning duration: 7 hrs.

Below are the deliverables for each component of the Academy Cloud Foundations course. Please note that actual delivery times will vary from class to class.

Module	Title	Numbe of Slides	eLearning	Lab	Knowledge Check
Module 0	Welcome to AWS Academy	48	18 min.		
Module 1.1	Cloud Concepts Overview	46	32 min.		10
Module 1.2	Cloud Economics	33	32 min.		10 min.
Module 1.3	AWS Infrastructure Overview	18	13 min.		10 min.
Module 2.1	AWS Core Services - Compute	67	45 min.		10 min.
Module 2.2	AWS Core Services - Storage	55	40 min.		10 min.
Module 2.3	AWS Core Services – Amazon Virtual Private Cloud	37	25 min.	45 min.	10 min.
Module 2.4	AWS Core Services - Databases	54	36 min.	45 min.	10 min.
Module 2.5	AWS Core Services – Elastic Load Balancing, Amazon CloudWatch and Auto Scaling	39	25 min.	45 min.	10 min.
Module 3	AWS Cloud Security	91	70 min.	30 min.	10 min.
Module 4	Cloud Architecting	49	37 min.		10 min.
Module5	Cloud Billing and Support	33	22 min.		10 min.

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Module Objectives

Module 0 Welcome to AWS Academy 48 slides 18 min.
In this module, we are going to provide a course overview and review the course objectives. We will walk through the creation of your AWS training portal account and show you how to access the course materials. Two optional sections have been included that illustrate how to create your AWS Free Tier and AWS Educate accounts.
Upon completing this module, students will be able to:

- Review course objectives and a course overview of what is contained in the Academy Cloud Foundations curriculum.
- Create AWS accounts that will enhance your cloud-learning journey.

Module 1.1 Cloud Concepts Overview
In this module, we will discuss the basics of cloud computing. You will learn what cloud computing is and discover the six advantages of cloud computing. We will reveal what Amazon Web Services is, as well as the AWS Cloud Adoption Framework. This course assumes you have a non-IT background, as it will not teach you how to build applications in the cloud. This course will give you a general conceptual understanding about the cloud and AWS.
Upon completing this module, students will be able to:

- Define different types of cloud computing to understand internet-based computing and three categories of cloud computing.
- Describe the six advantages of cloud computing, helping organizations make the decision to get out of the low-value parts of IT and focus on what drives business success.
- Describe three cloud deployment models for alternative models of cloud usage.
- Review the AWS Cloud Adoption Framework which helps organizations understand how cloud adoption transforms the way they work.

Module 1.2 Cloud Economics
This module reviews the economics of cloud computing. You will be introduced to the fundamentals of pricing, and we will review the total cost of ownership.
Upon completing this module, students will be able to:

- Understand the AWS pricing philosophy.
- Review fundamental pricing characteristics.
- Understand the elements of Total Cost of Ownership.

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Module 1.3 AWS Infrastructure Overview
The goal of this module is to understand the AWS global infrastructure and the types of services that are available. We will examine the AWS Global Infrastructure to gain a clear understanding of what the infrastructure includes, and understand the differences between AWS Regions, Availability Zones, and Edge Locations.
Upon completing this module, students will be able to:

- Examine the AWS global infrastructure.
- Understand the difference between AWS Regions, Availability Zones, and Edge Locations.

Module 2.1 AWS Core Services - Compute
Amazon Web Services provides multiple services to build out a solution. Some of these services provide the foundation to all solutions. We refer to these as the core services. In this module, we provide insight into the offerings of each service category and look at our first group of services, compute.
Upon completing this module, students will be able to:

- Understand the different AWS compute services available in the cloud to power your solution.
- Discover an in-depth review of Amazon Elastic Compute Cloud.
- Explain AWS Lambda, which is serverless computing.
- Review AWS Elastic Beanstalk.

Module 2.2 AWS Core Services - Storage
Cloud storage is typically more reliable, scalable, and secure than traditional on-premises storage systems. Cloud storage is a critical component of cloud computing, holding the information used by applications. Big data analytics, data warehouses, Internet of Things databases, and backup and archive applications all rely on some form of data storage architecture. In this module, we will explore Amazon Elastic Block Store, Amazon Simple Storage Service, Amazon Elastic File System and Amazon Glacier.
Upon completing this module, students will be able to:

- Discuss storage services including Amazon EBS, Amazon S3, Amazon EFS, and Amazon Glacier.
- Review use cases for storage options, along with a demonstration of Amazon Glacier.
- Understand storage pricing.

Module 2.3 AWS Core Services – Amazon Virtual Private Cloud
The Amazon Virtual Private Cloud is a custom-defined network within the AWS Cloud. It enables you to design and implement an independent network that operates in the cloud. We will understand the features and benefits of Amazon VPC, review Amazon VPC Security Groups and learn about Amazon CloudFront, a global Content Delivery Network service that securely delivers data, videos, applications, and APIs to your viewers with low latency and high transfer speeds.
Upon completing this module, students will be able to:

- Understand virtual networking in the cloud with Amazon VPC.
- Create virtual firewalls with security groups.
- Secure delivery of data, videos, applications, and APIs with Amazon CloudFront.

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Module 2.4 AWS Core Services - Databases
The business world is constantly changing and evolving. By accurately recording, updating, and tracking data on an efficient and regular basis, companies can leverage the immense potential from the insights obtained from their data. Database management systems are the crucial link for management of this data. Like other cloud services, cloud databases offer significant cost advantages over traditional database strategies. We will review the Amazon Relational Database Service, Amazon DynamoDB, Amazon Redshift, and Amazon Aurora. You will complete a lab to build your DB server and interact with your database using the app.
Upon completing this module, students will be able to:

- Provide an overview of different database services in the cloud.
- Highlight the difference between unmanaged and managed database solutions.
- Understand the differences between Structured Query Language and NoSQL databases.
- Review the availability differences of alternative database solutions.

Module 2.5 AWS Core Services – Elastic Load Balancing, Amazon CloudWatch, and Auto Scaling
AWS Core Services includes Elastic Load Balancing, Amazon CloudWatch, and Auto Scaling. In this module, we will learn how each of these services work both independently and together to help you deploy highly available and optimized workloads on AWS. You will complete a lab to scale and load balance your architecture.
Upon completing this module, students will be able to:

- Learn how to distribute traffic across Amazon Elastic Compute Cloud instances using Elastic Load Balancing.
- Discover the ability of Auto Scaling to launch and release servers in response to workload changes.
- Realize how CloudWatch enables you to monitor AWS resources and applications in real time.

Module 3 AWS Cloud Security
This module will familiarize you with all of the security considerations for your cloud solution. We will review security tools and best practices to help you understand key security concepts related to the Shared Responsibility Model and IAM.
Upon completing this module, students will be able to:

- Describe the AWS Shared Responsibility Model.
- Examine IAM users, groups, and roles.
- Describe different types of security credentials.
- Review the AWS Trusted Advisor checks.
- Discuss security compliance.
- Understand best practices on Day 1 with a new AWS account.

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Module 4 Cloud Architecting
The goal of this module is to introduce you to some foundational cloud architecting concepts. We will review and understand the well-architected framework and associated design. Architecture is the art and science of designing and building large structures. This knowledge will help you begin to understand all of the considerations of creating a well-architected cloud solution.
Upon completing this module, students will be able to:

- Explore the well-architected pillars and design principles.
- Understand high availability and reliability.
- Understand the business impact of design decisions.

Module 5 Cloud Billing and Support
Module 5 was designed to provide an overview of AWS billing and support services. We will review AWS Organizations, which is how you manage multiple AWS accounts and consolidated billing. We will also look at some tools that enable you to view and estimate costs. Finally, we will close with a look at how to find AWS white papers and documentation on all AWS services, features, and resources.
Upon completing this module, students will be able to:

- Understand how to set up an organizational structure that simplifies billing and account visibility to review cost data.
- Identify alternative support options and features.