

AWS Cloud Security Foundations– AWS-CSF

Dr. Ibrahim Gomaa

Lecture Intro - Course Overview



مجموعة جامعة
الجميع الذكية
للتعليم القابضة

Course Staff



مجموعة جامعة
الجميع الذكية
للتعليم القابضة

MIDOCEAN
UNIVERSITY
BY EVERYONE'S SMART UNIVERSITY

Dr. Ibrahim Gomaa



MIDOCEAN UNIVERSITY
Assistant Prof.

SANS INSTITUTE

hp

Microsoft

Linux

Information Security
Network Security
Cloud Security
Internet of Things
Blockchain Technology

Certified trainer for the following academies:

CISCO amazon HUAWEI vmware FORTINET

AWS Cloud Security Foundation (AWS CSF)



مجموعة جامعة
الجميع الذكية
للتعليم القابضة

AWS Cloud Security Foundations– AWS-CSF

Lecture Intro – Course Overview

Dr. Ibrahim Gomaa

This course is designed to help students gain a foundational knowledge of cybersecurity principles and services for cloud computing through a guided hands-on approach. This course includes demonstrations, instructional guides, and real-life scenarios.

Upon completion of this course, students will be able to do the following:

- Identify security benefits and responsibilities of using the Amazon Web Services (AWS) Cloud.
- Use the identity and access management features of AWS.
- Describe how to secure network access to AWS resources.
- Explain the available methods for encrypting data at rest and data in transit.
- Determine which AWS services can be used for monitoring and incident response.

This course requires a strong foundation in IT concepts and skills. To ensure success in this course, students should have the following:

- Completed the AWS Academy Cloud Foundations course or have equivalent experience.
- Worked with distributed systems.
- Worked with multi-tier architectures.
- Introduced general networking concepts.
- Introduced cloud computing concepts.

- **Lecture 1:** Cloud Concepts and Pricing
- **Lecture 2:** AWS Identity, Networking and Content Delivery
- **Lecture 3:** AWS Foundational Services - Compute
- **Lecture 4:** AWS foundational services – Storage and database
- **Lecture 5:** Automatic Scaling, Logging and Monitoring
- **Lecture 6:** AWS Cloud Security
- **Lecture 7:** Securing Access to Cloud Resources
- **Lecture 8:** Securing your infrastructure
- **Lecture 9:** Protecting data in your application
- **Lecture 10:** Responding to and Managing an Incident

Lecture 1: Cloud Concepts and Pricing

Topics

- Introduction to cloud computing
- Advantages of cloud computing
- Introduction to Amazon Web Services (AWS)
- Fundamentals of pricing
- Total Cost of Ownership
- AWS Organizations
- AWS Billing and Cost Management
- Technical Support

Activities

- AWS Pricing Calculator

Demo

- Overview of the Billing Dashboard



Knowledge check

Lecture 2: AWS Identity, Networking and Content Delivery

Topics

- AWS shared responsibility model
- AWS Identity and Access Management (IAM)
- Networking basics
- Amazon VPC, networking and security
- Amazon Route 53
- Amazon CloudFront

Activities

- Label a network diagram

Demo

- VPC demonstration

Lab

- Build your VPC and launch a web server



Knowledge check



Lecture 3: AWS Foundational Services - Compute

Topics

- Compute services overview
- Amazon EC2
- Amazon EC2 cost optimization
- Container services
- Introduction to AWS Lambda
- Introduction to AWS Elastic Beanstalk

Activities

- Amazon EC2 versus Managed Service

Demo

- Recorded demonstration of Amazon EC2

Lab

- Introduction to Amazon EC2



Knowledge check



مجموعة جامعة
الجميع الذكية
للتعليم القابضة

AWS Cloud Security Foundations– AWS-CSF

Lecture Intro – Course Overview

Dr. Ibrahim Gomaa

Lecture 4: AWS Foundational Services – Storage and Database

Topics

- Amazon Elastic Block Store (Amazon EBS)
- Amazon Simple Storage Service (Amazon S3)
- Amazon Elastic File System (Amazon EFS)
- Amazon Simple Storage Service Glacier
- Amazon Relational Database Service (Amazon RDS)
- Amazon DynamoDB
- Amazon Redshift
- Amazon Aurora

Activities

- Storage solution case study
- Database case studies

Demo

- Amazon EBS console
- Amazon RDS console

Lab

- Working with Amazon EBS
- Build Your DB Server and Interact with Your DB Using an App



Knowledge check



Lecture 5: Automatic Scaling, Logging and Monitoring

Topics

- Elastic Load Balancing
- Amazon CloudWatch
- Amazon EC2 Auto Scaling
- Importance of logging and monitoring
- Capture and collect
- AWS services with built-in logs
- Monitor and report

Activities

- Elastic Load Balancing activity
- Amazon CloudWatch

Demo

- Amazon EBS console
- Security Hub

Lab

- Scale and Load Balance Your Architecture
- Monitoring and Alerting with CloudTrail and CloudWatch



Knowledge check

Lecture 6: AWS Cloud Security

Topics

- Security in the AWS Cloud
- Security design principles
- Shared responsibility model
- Securing a new AWS account
- Securing accounts
- Securing data on AWS
- Working to ensure compliance

Activities

- AWS shared responsibility model activity

Demo

- Recorded demonstration of IAM

Lab

- Introduction to AWS IAM



Knowledge check

Lecture 7: Securing Access to Cloud Resources

Topics

- IAM fundamentals
- Authenticating with IAM
- Authorizing with IAM
- Examples of authorizing with IAM
- Additional authentication and access management services
- Using AWS Organizations

Demo

- Amazon S3 Cross-Account Resource-Based Policy

Lab

- Using Resource-Based Policies to Secure an S3 Bucket



Knowledge check

Lecture 8: Securing your infrastructure

Topics

- Structure of a three-tier web application
- Using a VPC
- Setting up public and private subnets and internet protocols
- Using AWS security groups
- Using AWS network ACLs
- Using AWS load balancers
- Pulling it all together
- Protecting your compute resources

Lab

- Securing VPC Resources by Using Security Groups



Knowledge check

Lecture 9: Protecting data in your application

Topics

- Protect data at rest
- Amazon S3 protection features
- Protection through encryption
- Protect data in transit
- Best practices to protect data in Amazon S3
- Additional data protection services

Lab

- Encrypting Data at Rest by Using AWS KMS



Knowledge check

Lecture 10: Responding to and Managing an Incident

Topics

- Identifying an incident
- AWS services that support the discovery and recognition phase
- AWS services that support the resolution and recovery phase
- Best practices for handling an incident

Lab

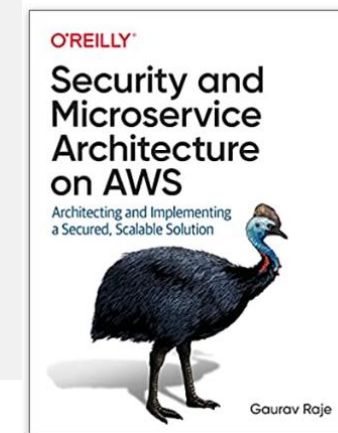
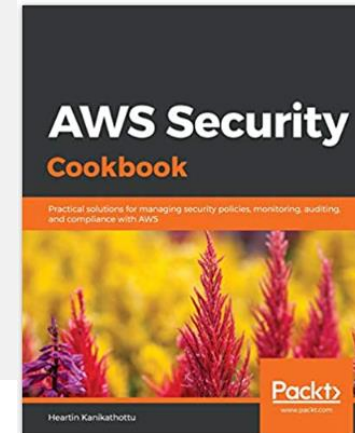
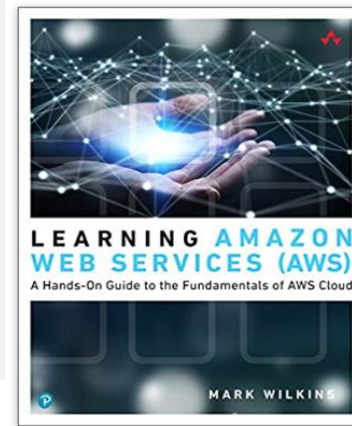
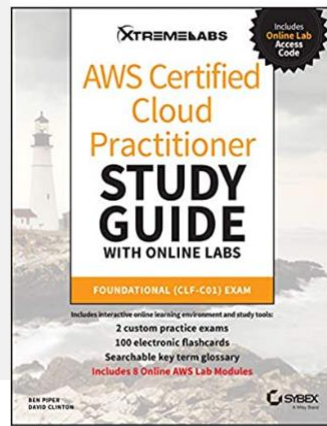
- Remediating an Incident by Using AWS Config and Lambda



Knowledge check

References

- <https://docs.aws.amazon.com/>
- **AWS Certified Cloud Practitioner Study Guide with Online Labs: Foundational (CLF-C01) Exam 1st Edition**, [Ben Piper](#) (Author), [David Clinton](#) (Author)
- **Learning Amazon Web Services (AWS): A Hands-On Guide to the Fundamentals of AWS Cloud 1st Edition**, Mark Wilkins (Author)
- **AWS Security Cookbook: Practical solutions for managing security policies, monitoring, auditing, and compliance with AWS**, Heartin Kanikathottu (Author)
- **Security and Microservice Architecture on AWS: Architecting and Implementing a Secured, Scalable Solution 1st Edition**, Gaurav Raju (Author)



AWS Cloud Security Foundations– AWS-CSF

Lecture Intro – Course Overview

Dr. Ibrahim Goma



مجموعة جامعة
الجميع الذكية
للتعليم القابضة

Thanks