

Montgomery County Community College  
 CIS 203  
 Azure Cloud Fundamentals  
 3-2-2

**COURSE DESCRIPTION:**

This course is designed to develop a fundamental understanding of the Azure cloud computing platform independent of any specific technical role. Course topics include Azure Cloud concepts, core Azure services, security, architecture, database concepts, pricing, and support to build your Azure Cloud knowledge. This course will help students prepare for the Azure Cloud Fundamentals exam.

**PREREQUISITE(S):**

CIS 166: Introduction to Cloud Computing  
 CIS 111: CS1: Programming and Concepts  
 CIS 170: Introduction to Networks

Upon successful completion of this course, the student will be able to:

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
1. Explain key definitions and concepts of the Azure Cloud computing model.	Lecture/Discussion Homework Assignments Assigned readings	Discussion/Questions Projects Tests/Quizzes
2. Differentiate between the core workload products and solutions available in Azure.	Lecture/Discussion Homework Assignments Assigned readings	Discussion/Questions Projects Tests/Quizzes Case Studies
3. Utilize Azure tools to price, configure and monitor Cloud resources.	Lecture/Discussion Homework Assignments Assigned readings Hands-on lab simulations	Hands-on lab simulations Projects Tests/Quizzes
4. Describe examples of Azure identity, governance, privacy, and compliance features.	Lecture/Discussion Homework Assignments Research Assigned readings	Discussion/Questions Research presentations Tests/Quizzes
5. Deploy an appropriate business solution using Azure Cloud services for various use cases.	Lecture/Discussion Homework Assignments Assigned readings Hands-on lab simulations	Discussion/Questions Project presentations Tests/Quizzes Case Studies
6. Prepare for taking an industry standard exam.	Lecture/Discussion Practice Tests	Tests/Quizzes

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Director of Educational Effectiveness. The benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria.*

## SEQUENCE OF TOPICS:

1. Identify the benefits and considerations for using Cloud Services
2. Describe the difference between Infrastructure as a Service (IaaS), Software as a Service (SaaS) and Platform as a Service (PaaS)
3. Differentiate between public, private and hybrid-cloud models
4. Describe the core Azure architectural components
5. Utilize core workload products available in Azure:
  - Azure virtual machines
  - Azure App Service
  - Azure Container Instances (ACI)
  - Azure Kubernetes Services
  - Windows Virtual Desktop
  - Virtual networks
  - ExpressRoute
  - Container storage
  - Disk Storage
  - Azure Files
  - Storage Tiers
6. Azure Database options:
  - Cosmos DB
  - Azure SQL database
  - Databased for PostgreSQL and MySQL
7. Describe core solutions available in Azure
  - Azure IoT Hub
  - IoT Central
  - Azure Sphere
  - Azure Synapse Analytics
  - HDInsight
  - Azure Databricks
  - Azure Machine Learning
  - Cognitive Services
  - Azure Bot Service
  - Serverless computing
  - Azure Functions
  - Logic Apps
  - Event Grid
  - Azure DevOps
  - Azure test labs
8. Azure management tools
  - Azure portal
  - Azure PowerShell
  - Azure CLI
  - Azure Cloud Shell
  - Azure mobile app
  - Azure Advisor

- Azure Monitor
- Azure Service Health
- 9. Describe identity, governance, privacy, and compliance features
  - Authentication and authorization
  - Azure Active Directory
  - Conditional Access and multifactor authentication (MFA)
  - Role-based access control (RBAC)
  - Azure governance features
  - Privacy and compliance resources
- 10. Describe Azure pricing, SLAs and lifecycles
  - Factors affecting costs
  - Pricing and total cost calculator
  - Azure cost management
  - Azure Service Level Agreements
  - Service lifecycle in Azure
- 11. General security and network security
  - Azure Security Center
  - Key Vault
  - Azure Sentinel
  - Defense in depth
  - Network Security Groups (NSGs)
  - Azure Firewall
  - Azure DDoS Protection
- 12. Azure marketplace and usage scenarios
- 13. Sources of documentation or technical assistance
- 14. Azure Cloud computing implementation case studies
- 15. Taking the Azure Fundamentals Exam

#### LEARNING MATERIALS:

Microsoft Azure Fundamentals, Exam Ref AZ-900, 2<sup>nd</sup> Edition  
Author: Jim Cheshire, Publisher Microsoft Press, August 2020,  
ISBN: 978-0136877189

#### COURSE APPROVAL:

Revised by: Marie Hartlein  
VPAA or designee Compliance Verification:

Date: 12/1/2020

Date: 4/27/2021



*This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.*