

Module 0: Introduction

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Evaluation Purposes Only

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Introductions

Please introduce yourself:

- Name
- Company affiliation
- Job Role
- SQL Server background
- Goals for this course

This is a good time for each student to introduce themselves to the class and tell something about their background. Any experience with SQL Server or other relational databases, PowerShell scripting and Windows Servers will be helpful with this class. Explaining specific goals will also help the trainer and other students to offer practical help.

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Facilities

- Class hours
- Building hours
- Parking
- Restrooms
- Meals
- Phones
- Messages
- Emergency procedures

Depending on the facilities being used, information about the following might be useful to students:

- Class hours
- Building hours
- Parking
- Restrooms
- Meals
- Phones
- Messages
- Emergency procedures

Who will benefit from this course?

Candidates who attend this course typically are IT professionals / developers who:

- Authorize users to work on SQL Server
- Automate database management and maintenance tasks
- Monitor and Troubleshoot SQL Server Instances
- Developers creating database solutions

The primary audience for this course is individuals who administer and maintain SQL Server databases. These individuals perform database administration and maintenance as their primary area of responsibility, or work in environments where databases play a key role in their primary job.

The secondary audiences for this course are individuals who develop applications that deliver content from SQL Server databases.

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Prerequisites

Before attending this course, students must have:

- Experience using applications on Windows Servers
- Experience working with SQL Server or another RDMS

Before attending this course, students must have:

- Experience using applications on Windows Servers
- Experience working with SQL Server or another RDMS
- Some experience with command-line tools like PowerShell

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Course Objectives (1)

After completing this course, students will be able to:

- Authenticate and authorize users
- Assign server and database roles
- Authorize users to access resources
- Use encryption and auditing features to protect data
- Describe recovery models and backup strategies
- Backup and Restore SQL Server databases
- Automate database management

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- Authenticate and authorize users
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- Use encryption and auditing features to protect data
- Describe recovery models and backup strategies
- Backup and Restore SQL Server databases
- Automate database management
- Configure security for the SQL Server agent
- Manage alerts and notifications
- Managing SQL Server using PowerShell
- Trace access to SQL Server
- Monitor a SQL Server infrastructure
- Troubleshoot a SQL Server infrastructure
- Import and export data

Course Objectives (2)

After completing this course, students will be able to:

- Configure security for the SQL Server agent
- Manage alerts and notifications
- Managing SQL Server using PowerShell
- Trace access to SQL Server
- Monitor a SQL Server infrastructure
- Troubleshoot a SQL Server infrastructure
- Import and export data

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- Troubleshoot a SQL Server infrastructure
- Import and export data

Course Outline (1 - 5)

Module 1: SQL Server Security

Module 2: Assigning Server and Database Roles

Module 3: Authorizing Users to Access Resources

Module 4: Protecting Data with Encryption and Auditing

Module 5: Recovery Models and Backup Strategies

Course Outline (1 - 5):

Module 1: SQL Server Security

Module 2: Assigning Server and Database Roles

Module 3: Authorizing Users to Access Resources

Module 4: Protecting Data with Encryption and Auditing

Module 5: Recovery Models and Backup Strategies

Course Outline (6 - 10)

Module 6: Backing Up SQL Server Databases

Module 7: Restoring SQL Server Databases

Module 8: Automating SQL Server Management

Module 9: Configuring Security for SQL Server Agent

Module 10: Monitoring SQL Server with Alerts and Notifications

Course Outline (6 - 10):

Module 6: Backing Up SQL Server Databases

Module 7: Restoring SQL Server Databases

Module 8: Automating SQL Server Management

Module 9: Configuring Security for SQL Server Agent

Module 10: Monitoring SQL Server with Alerts and Notifications

Course Outline (11 - 15)

Module 11: Introduction to Managing SQL Server by using PowerShell

Module 12: Tracing Access to SQL Server with Extended events

Module 13: Monitoring SQL Server

Module 14: Troubleshooting SQL Server

Module 15: Importing and Exporting Data

Course Outline (11 - 15):

Module 11: Introduction to Managing SQL Server by using PowerShell

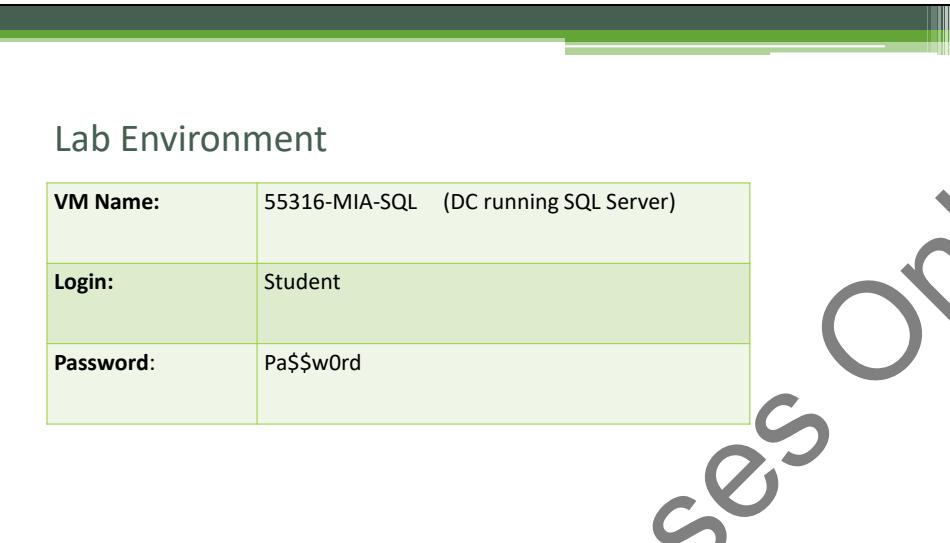
Module 12: Tracing Access to SQL Server with Extended events

Module 13: Monitoring SQL Server

Module 14: Troubleshooting SQL Server

Module 15: Importing and Exporting Data

Evaluation purposes Only



This course will use the following virtual machine:

- 55316-MIA-SQL: A Windows Server 2019 DC running SQL Server 2019
- Students may login to the server with a user account of **Student** using the password **Pa\$\$w0rd**

The student materials will include the setup files for this class. Using a personal Azure account, you will be able to duplicate the classroom environment and lab exercises.

Note: Some SQL Server and Azure SQL connections may require an encrypted connection. This can be configured in the Options window in SSMS.

Demonstration: Setup AdventureWorks databases

In this demonstration, you will see how to:

- Setup AdventureWorks databases
- Connect to AdventureWorks databases

VM Name: 55316-MIA-SQL (DC running SQL Server)
Login: Student
Password: Pa\$\$w0rd

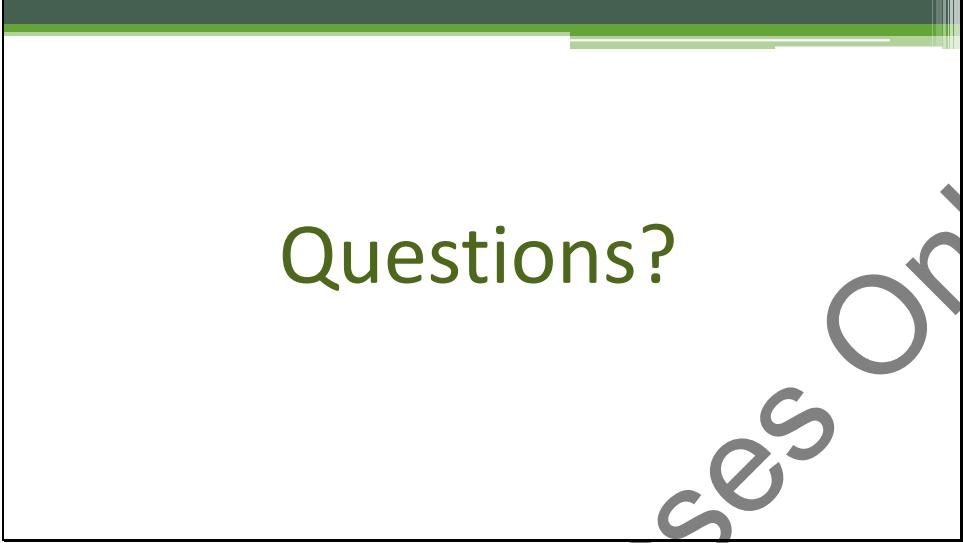
Note: Perform all tasks with Administrator privileges. Login to SQL Server using Windows Authentication

Note: The **TrustServerCertificate** and **SkipCertificateCheck** PowerShell parameters may sometimes be necessary to bypass SSL/TLS certificate validation. Use **TrustServerCertificate** when connecting to a SQL Server instance with encryption but without requiring a trusted certificate. Use **SkipCertificateCheck** for HTTPS or web-based PowerShell commands where the server certificate might be invalid or self-signed. (Examples: \$connectionString = "Data Source=myServer; Initial Catalog=myDB; Encrypt=True; **TrustServerCertificate=True**"; and Invoke-RestMethod -Uri "https://insecure.api" **-SkipCertificateCheck**).

Unless stated otherwise, all student resources are located in the **C:\Classfiles** folder. Updates to class files can be found on GitHub (<https://github.com/neiltucker/55316A>).

Demonstration Steps (Unless specified otherwise, perform all steps with Elevated / Administrator privileges)

- Start the **55316-MIA-SQL** virtual machine, and then login as **Student** with the password **Pa\$\$w0rd**.
- In the **C:\Classfiles** folder, verify that the **AdventureWorks2019.bak** file exists. If not execute the **C:\Classfiles\AdventureWorks_Download.ps1** file.
- In the **C:\Classfiles** folder, execute the **C:\Classfiles\AdventureWorks_Install.ps1** file. This will restore the original **AdventureWorks2019** database configuration if you have modified it.
- In the **C:\Classfiles** folder, verify that the **AdventureWorksDW2019.bak** file exists. If not execute the **C:\Classfiles\AdventureWorksDW_Download.ps1** file.
- In the **C:\Classfiles** folder, execute the **C:\Classfiles\AdventureWorksDW_Install.ps1** file. This will restore the original **AdventureWorksDW2019** database configuration if you have modified it.
- Open **SQL Server Management Studio**. **Connect** to the local server using Windows Authentication.
- From the **Object Explorer**, expand **Databases**. Expand **AdventureWorks2019** and **AdventureWorksDW2019**.



Questions?

Review & Questions

Before continuing with the lab, ask the students if they have any questions on the material or demonstrations.

Evaluation Purposes Only