

# Querying Microsoft SQL Server 2014

Course: 20461

## Course Details

Audience(s): IT Professional(s)

Technology: Microsoft SQL Server 2014

Duration: 40 Hours

## ABOUT THIS COURSE

This forty hours of instructor-led course provides students with the technical skills required to write basic Transact-SQL queries for Microsoft SQL Server 2014. This course is the foundation for all SQL Server-related disciplines; namely, Database Administration, Database Development and Business Intelligence. The main purpose of the course is to prepare people for the exam "70-461". This exam will be the underlying exam for all SQL Server-related disciplines; namely, Database Administration, Database Development and Business Intelligence. As such, the primary target audience for this course is: Database Administrators, Database Developers and BI professionals. This course is also designed for customers who are interested in learning SQL Server 2012 or SQL Server 2014. It covers the new features in SQL Server 2014, but also the important capabilities across the SQL Server data platform.

## AUDIENCE PROFILE

This course is intended for Database Administrators, Database Developers, and Business Intelligence professionals. The course will very likely be well attended by SQL power users who aren't necessarily database-focused or plan on taking the exam; namely, report writers, business analysts and client application developers.

## Course Content

### Module 1: Introduction to Microsoft SQL Server 2014

#### Lessons

- The Basic Architecture of SQL Server
- SQL Server Editions and Versions
- Getting Started with SQL Server Management Studio

**Lab: Working with SQL Server 2014 Tools**

### Module 2: Introduction to T-SQL Querying

#### Lessons

- Introducing T-SQL
- Understanding Sets
- Understanding Predicate Logic
- Understanding the Logical Order of Operations in SELECT statements

**Lab: Introduction to Transact-SQL Querying**

### Module 3: Writing SELECT Queries

#### Lessons

- Writing Simple SELECT Statements
- Eliminate Duplicates with DISTINCT
- Using Column and Table Aliases
- Write Simple CASE Expressions

**Lab: Writing Basic SELECT Statements**

### Module 4: Querying Multiple Tables

#### Lessons

- Understanding Joins
- Querying with Inner Joins
- Querying with Outer Joins
- Querying with Cross Joins and Self Joins

**Lab: Querying Multiple Tables**

## Module 5: Sorting and Filtering Data

### Lessons

- Sorting Data
- Filtering Data with Predicates
- Filtering with the TOP and OFFSET-FETCH
- Working with Unknown Values

**Lab: Sorting and Filtering Data**

## Module 6: Working with SQL Server 2014 Data Types

### Lessons

- Introducing SQL Server 2014 Data Types
- Working with Character Data
- Working with Date and Time Data

**Lab: Working with SQL Server 2014 Data Types**

## Module 7: Using DML to Modify Data

### Lessons

- Inserting Data
- Modifying and Deleting Data

**Lab: Using DML to Modify Data**

## Module 8: Using Built-In Functions

### Lessons

- Writing Queries with Built-In Functions
- Using Conversion Functions
- Using Logical Functions
- Using Functions to Work with NULL

**Lab: Using Built-In Functions**

## Module 9: Grouping and Aggregating Data

### Lessons

- Using Aggregate Functions
- Using the GROUP BY Clause
- Filtering Groups with HAVING

**Lab: Grouping and Aggregating Data**

## Module 10: Using Subqueries

### Lessons

- Writing Self-Contained Subqueries
- Writing Correlated Subqueries
- Using the EXISTS Predicate with Subqueries

**Lab: Using Subqueries**

## Module 11: Using Table Expressions

### Lessons

- Using Views
- Using Inline Table-Valued Functions
- Using Derived Tables
- Using Common Table Expressions

**Lab: Using Table Expressions**

## Module 12: Using Set Operators

### Lessons

- Writing Queries with the UNION Operator
- Using EXCEPT and INTERSECT
- Using APPLY

**Lab: Using Set Operators**

## Module 13: Using Window Ranking, Offset, and Aggregate Functions

### Lessons

- Creating Windows with OVER
- Exploring Window Functions

**Lab: Using Window Ranking, Offset and Aggregate Functions**

## Module 14: Pivoting and Grouping Sets

### Lessons

- Writing Queries with PIVOT and UNPIVOT
- Working with Grouping Sets

**Lab: Pivoting and Grouping Sets**

## Module 15: Querying data with Stored Procedures

### Lessons

- Writing Queries with PIVOT and UNPIVOT
- Passing Parameters to Stored Procedures
- Creating Simple Stored Procedures
- Working with Dynamic SQL

**Lab: Executing Stored Procedures**

## Module 16: Programming with T-SQL

### Lessons

- T-SQL Programming Elements
- Controlling Program Flow

**Lab: Programming with T-SQL**

## Module 17: Implementing Error Handling

### Lessons

- Using TRY / CATCH Blocks
- Working with Error Information

**Lab: Implementing Error Handling**

## Module 18: Implementing Transactions

### Lessons

- Transactions and the Database Engine
- Controlling Transactions

**Lab: Implementing Transactions**

## Module 19: Improving Query Performance

### Lessons

- Factors in Query Performance
- Displaying Query Performance Data

**Lab: Improving Query Performance**

## Module 20: Querying SQL Server Metadata

### Lessons

- Querying System Catalog Views and Functions
- Executing System Stored Procedures
- Querying Dynamic Management Objects

**Lab: Querying SQL Server Metadata**

## At This Course Completion

At completing this course the student will be able to:

- Describe the basic architecture and concepts of Microsoft SQL Server 2014.
- Understand the differences between Transact-SQL and other computer languages.
- Write SELECT queries
- Query multiple tables
- Sort and filter data
- Describe the use of data types in SQL Server
- Modify data using Transact-SQL
- Use built-in functions
- Group and aggregate data
- Use subqueries
- Use table expressions
- Use set operators
- Use window ranking, offset and aggregate functions
- Implement pivoting and grouping sets
- Execute stored procedures
- Program with T-SQL
- Implement error handling
- Implement transactions