



COURSE SYLLABUS

Fundamentals of SQL Querying

Write SQL queries that filter, calculate, group, join and rank data, then check AI-written SQL and produce a verified report.

\$995 per person

10 course hours (on-demand video and labs) plus 1 hour of coaching

On-demand asynchronous training with online support, plus 1 hour of coaching.

Fundamentals of SQL Querying

Write SQL queries that filter, calculate, group, join and rank data, then check AI-written SQL and produce a verified report.

Credential type	Certificate, issued by We Can Code IT
Clock hours	11 (10 course hours plus 1 hour of coaching)
Price	\$995 per person
Time	10 course hours (on-demand video and labs) plus 1 hour of coaching
Delivery	On-demand asynchronous training with online support, plus 1 hour of coaching.
Credential	Certificate of completion from We Can Code IT
Who it is for	This course is for business users, analysts and new technical staff who need to pull and summarize their own data. It also suits report writers who want to read and check the SQL that others or AI tools write.
Prerequisites	Basic computer skills and some familiarity with database terms such as table, row and column; No prior SQL experience is needed
Requirements	Works on Windows or Mac; SQL Server 2025 Developer or Express edition (free); on a Mac you run SQL Server in a Docker container or use a cloud database; SQL Server Management Studio 21 or later on Windows, or Visual Studio Code with the SQL extension on Windows or Mac; Access to a generative AI assistant your employer approves, for the AI-assisted querying module

About this course

This course covers querying in SQL from your first SELECT statement to window functions. You connect to a sample database, filter and calculate data, summarize it with aggregates and grouping, combine tables with joins, and break harder questions into subqueries and common table expressions. You then use AI to draft SQL, test every AI-written query against your own results before you trust it, and turn the verified queries into a short report.

What you will be able to do

- You will be able to write SELECT queries that filter rows with WHERE, BETWEEN, IN, LIKE and correct NULL handling.
- You will be able to calculate and format results with expressions, aliases, string and date functions and CAST.
- You will be able to summarize data with COUNT, SUM, AVG, MIN and MAX using GROUP BY and HAVING.

- You will be able to combine tables with inner, left and full joins and answer multi-step questions with subqueries and common table expressions.
- You will be able to rank rows and calculate running totals and period-over-period changes with window functions.
- You will be able to test AI-written SQL against known results, find its errors and correct them before using the output.

Syllabus

Module	Hours
1. Connect and run your first queries Connecting to a sample database, SELECT and FROM, Choosing columns, Sorting with ORDER BY and TOP, Saving and rerunning queries. Lab: You connect to the sample sales database and write queries that list customers and products in a requested order.	1 h
2. Filtering rows WHERE with comparison operators, AND, OR and NOT, BETWEEN and IN, LIKE patterns, NULL handling. Lab: You answer a set of business questions that each need a different filter, including ones where NULL values change the answer.	1 h
3. Calculating and formatting output Calculated columns, Column aliases, String functions, Date functions, CAST and number and date formatting. Lab: You build a query that calculates line totals, discounts and order age and formats the results so a manager can read them.	1 h
4. Aggregates and grouping COUNT, SUM, AVG, MIN and MAX, GROUP BY, HAVING, Counting distinct values. Lab: You summarize sales by month, region and product category and use HAVING to find the groups that missed a target.	1.5 h
5. Joins across tables Inner joins, Left and right joins, Full joins, Joining three or more tables, UNION. Lab: You join orders, customers and products to answer questions such as which customers bought nothing last quarter.	1.5 h
6. Subqueries and common table expressions Subqueries in WHERE, Subqueries in FROM, EXISTS and NOT EXISTS, Common table expressions, Breaking a question into steps. Lab: You rewrite a long multi-step question as a chain of common table expressions and confirm it returns the same result as the subquery version.	1.5 h

7. Window functions

1.5 h

OVER and PARTITION BY, ROW_NUMBER, RANK and DENSE_RANK, Running totals, LAG and LEAD, Top N per group.

Lab: You rank salespeople within each region, add a running total of monthly sales and calculate the change from the prior month.

8. AI-assisted querying and a verified report

1 h

Describing a question to an AI assistant, Reading AI-written SQL, Testing against known results, Common AI query errors, Exporting results to CSV.

Lab: You have an AI assistant write queries for a business request, test each against your own results, fix the errors you find and export the verified queries as a short report.

Coaching sessions

1 h

1 hour of coaching. One-on-one or small-group coaching, scheduled with your coach.

Live online or in-person sessions are available for an additional fee. Email admissions@wecancodeit.org for details.

Provider

We Can Code IT, LLC, 26300 Cedar Rd, Suite 1105, Beachwood, OH 44122. Registered with the Ohio State Board of Career Colleges and Schools, Registration No. 15-03-2064T. Contact: admissions@wecancodeit.org. Syllabus version 2026-10-10.