



Orchestrate BigQuery Workloads with Dataform

Dataform is a service for data analysts to develop, test, version control, and schedule complex SQL workflows for data transformation in BigQuery. In this course you will explore the components of Dataform core, learn how to define tables and dependencies in SQLX, document BigQuery tables and views, understand BigQuery security settings and how to manage these with Dataform, write assertions, execute SQL workflows, and explore additional advanced use cases.

DURATION
1 Day

LEVEL
Intermediate

FORMAT
Instructor-led

What you'll learn

- Understand the components of Dataform core.
- Create tables and views in BigQuery using Dataform.
- Document BigQuery tables and views.
- Understand BigQuery security settings using Dataform.
- Use assertions to validate data in Dataform workflows.
- Execute Dataform SQL workflows in an automated fashion.

Overview	7 modules · 4 labs
Who this course is for	Customers
Prerequisite	Knowledge of SQL data analysis and BigQuery as discussed in BigQuery for Data Analysis.

Module 01 Dataform Core Components

Topics	<ul style="list-style-type: none">SQL workflowRepositories and workspacesDefault files and foldersCompiled graphs
Objectives	Understand the components of Dataflow core.

Module 02 Table Definitions and Dependencies

Topics	<ul style="list-style-type: none">Declare a data source.Create a table.Create an incremental table.Set partitioning and clustering options.Create an empty table.Create an external BigLake table.Create views and materialized views.Define dependencies.
Objectives	Create tables and views in BigQuery using Dataform.

Module 03 Document BigQuery Tables and Views

Topics	<ul style="list-style-type: none">Use column descriptions.Use globally defined JavaScript constants.Add labels.
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Objectives	Document BigQuery tables and views.
Activities	Lab: Build SQL Workflows with Dependencies in Dataform

Module 04 **BigQuery Security Settings**

Topics	<ul style="list-style-type: none">• IAM dataset and table/view access• Column-level security• Row-level security
Objectives	Understand BigQuery security settings using Dataform.

Module 05 **Assertions**

Topics	<ul style="list-style-type: none">• Use built-in assertions.• Create manual assertions.
Objectives	<ul style="list-style-type: none">• Use assertions to validate data in Dataform workflows.
Activities	Lab: Work with Assertions and BigQuery Security Settings in Dataform

Module 06 **SQL Workflow Executions**

Topics	<ul style="list-style-type: none">• Dataform code lifecycle.• What happens during compilation.• Customize and schedule compilation results.• Execute workflows (UI, Cloud Scheduler, Cloud Composer).• Logging and monitoring.
Objectives	Execute Dataform SQL workflows in an automated fashion.
Activities	Lab: Automate and Monitor SQL Workflow Executions in Dataform

Module 07 **Advanced Use Cases**

Topics	<ul style="list-style-type: none">• Create a BigLake table after file upload using Cloud Run functions.• Build a Machine Learning pipeline with BigQuery ML.• Work with Slowly Changing Dimensions Type 2.
Objectives	Explore additional use cases for Dataform.
Activities	Lab: Create a BigLake Table with Dataform Using Cloud Run Functions