



## From Data to Insights with Google Cloud (GCPBID)

**Duration: 2 Days**    **Course Code: GO6589**

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### Overview:

Want to know how to query and process petabytes of data in seconds? Curious about data analysis that scales automatically as your data grows?

Welcome to the Data Insights course! This two-day instructor-led class teaches course participants how to derive insights through data analysis and visualization using the Google Cloud Platform. The course features interactive scenarios and hands-on labs where participants explore, mine, load, visualize, and extract insights from diverse Google BigQuery datasets. The course covers data loading, querying, schema modeling, optimizing performance, query pricing, and data visualization.

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### Target Audience:

Data Analysts, Business Analysts, Business Intelligence professionals Cloud Data Engineers who will be partnering with Data Analysts to build scalable data solutions on Google Cloud Platform

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### Objectives:

- This course teaches participants the following skills:
  - Derive insights from data using the analysis and visualization tools on Google Cloud Platform
  - Interactively query datasets using Google BigQuery
  - Load, clean, and transform data at scale
  - Visualize data using Google Data Studio and other third-party platforms
  - Distinguish between exploratory and explanatory analytics and when to use each approach
  - Explore new datasets and uncover hidden insights quickly and effectively
  - Optimizing data models and queries for price and performance
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### Prerequisites:

To get the most out of this course, participants should have:

- Basic proficiency with ANSI SQL
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### Follow-on-Courses:

Gain a wider view of Google Cloud Platform using Big Data and ML Fundamentals (GO8325)

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## Content:

Module 1: Introduction to Data on the Google Cloud Platform

Before and Now: Scalable Data Analysis in the Cloud

Topics Covered

- Highlight Analytics Challenges Faced by Data Analysts
- Compare Big Data On-Premise vs on the Cloud
- Learn from Real-World Use Cases of Companies Transformed through Analytics on the Cloud
- Navigate Google Cloud Platform Project Basics
- Lab: Getting started with Google Cloud Platform
- Walkthrough Data Analyst Tasks, Challenges, and Introduce Google Cloud Platform Data Tools
- Demo: Analyze 10 Billion Records with Google BigQuery
- Explore 9 Fundamental Google BigQuery Features
- Compare GCP Tools for Analysts, Data Scientists, and Data Engineers
- Lab: Exploring Datasets with Google BigQuery
- Compare Common Data Exploration Techniques
- Learn How to Code High Quality Standard SQL
- Explore Google BigQuery Public Datasets
- Visualization Preview: Google Data Studio
- Lab: Troubleshoot Common SQL Errors
- Walkthrough of a BigQuery Job
- Calculate BigQuery Pricing: Storage, Querying, and Streaming Costs
- Optimize Queries for Cost
- Lab: Calculate Google BigQuery Pricing
- Examine the 5 Principles of Dataset Integrity
- Characterize Dataset Shape and Skew
- Clean and Transform Data using SQL
- Clean and Transform Data using a new UI: Introducing Cloud Dataprep
- Lab: Explore and Shape Data with Cloud Dataprep
- Compare Permanent vs Temporary Tables
- Save and Export Query Results
- Performance Preview: Query Cache
- Lab: Creating new Permanent Tables
- Query from External Data Sources
- Avoid Data Ingesting Pitfalls
- Ingest New Data into Permanent Tables
- Discuss Streaming Inserts
- Lab: Ingesting and Querying New Datasets
- Overview of Data Visualization Principles
- Exploratory vs Explanatory Analysis Approaches
- Demo: Google Data Studio UI

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- Demo: Google Data Studio UI
- Connect Google Data Studio to Google BigQuery
- Lab: Exploring a Dataset in Google Data

Module 12: Advanced Visualization with Google Data Studio

Create Pixel-Perfect Dashboards

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- Lab: Visualizing Insights with Google Data Studio
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- Discuss Effective Sub-query and CTE design
- Compare SQL and Javascript UDFs
- Lab: Deriving Insights with Advanced SQL Functions
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- Diagnose Performance Issues with the Query Explanation map
- Lab: Optimizing and Troubleshooting Query Performance
- Distill Complex Queries
- Brainstorm Data-Driven Hypotheses
- Think like a Data Scientist
- Introducing Cloud Datalab
- Lab: Reading a Google Cloud Datalab notebook
- Compare IAM and BigQuery Dataset Roles
- Avoid Access Pitfalls
- Review Members, Roles, Organizations, Account Administration, and Service Accounts

Module 2: Big Data Tools Overview

Sharpen the Tools in your Data Analyst toolkit

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- Introduce Table Wildcards for Easy Merges
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Module 7: Ingesting New Datasets into Google BigQuery

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Module 13: Advanced Functions and Clauses

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## Bring your Data into the Cloud

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## Dive Deeper into Advanced Query Writing with Google BigQuery

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- Connect Google Data Studio to Google BigQuery
- Lab: Exploring a Dataset in Google Data Studio

## Tables

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- Lab: Reading a Google Cloud Datalab notebook
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## Module 3: Exploring your Data with SQL

Get Familiar with Google BigQuery and Learn SQL Best Practices

### Topics Covered

- Highlight Analytics Challenges Faced by Data Analysts
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## BigQuery

- Lab: Exploring a Dataset in Google Data Studio
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## Module 8: Data Visualization

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## Module 14: Optimizing for Performance

Troubleshoot and Solve Query Performance Problems

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- Effectively Explore and Explain your Data through Visualization

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#### Module 4: Google BigQuery Pricing

- Calculate Google BigQuery Storage and Query Costs

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- Review Data Schemas: Linking Data Across Multiple Tables
- Walkthrough JOIN Examples and Pitfalls
- Lab: Join and Union Data from Multiple Tables
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- Deep-dive into Column-Oriented Storage
- Examine Logical Views, Date-Partitioned Tables, and Best Practices
- Query the Past with Time Travelling Snapshots
- Compare Google BigQuery vs Traditional RDBMS Data Architecture
- Normalization vs Denormalization: Performance Tradeoffs
- Schema Review: The Good, The Bad, and The Ugly
- Arrays and Nested Data in Google BigQuery
- Lab: Querying Nested and Repeated Data
- Create Case Statements and Calculated Fields
- Avoid Performance Pitfalls with Cache considerations
- Share Dashboards and Discuss Data Access considerations
- Lab: Visualizing Insights with Google Data Studio
- Review SQL Case Statements
- Introduce Analytical Window Functions
- Safeguard Data with One-Way Field Encryption
- Discuss Effective Sub-query and CTE design
- Compare SQL and Javascript UDFs
- Lab: Deriving Insights with Advanced SQL Functions
- Avoid Google BigQuery Performance Pitfalls
- Prevent Hotspots in your Data
- Diagnose Performance Issues with the Query Explanation map
- Lab: Optimizing and Troubleshooting Query Performance
- Distill Complex Queries
- Brainstorm Data-Driven Hypotheses
- Think like a Data Scientist
- Introducing Cloud Datalab
- Lab: Reading a Google Cloud Datalab notebook
- Compare IAM and BigQuery Dataset Roles
- Avoid Access Pitfalls
- Review Members, Roles, Organizations, Account Administration, and Service Accounts

#### Module 9: Joining and Merging Datasets

- Across Multiple Tables
- Walkthrough JOIN Examples and Pitfalls
- Lab: Join and Union Data from Multiple Tables
- Compare Data Warehouse Storage Methods
- Deep-dive into Column-Oriented Storage
- Examine Logical Views, Date-Partitioned Tables, and Best Practices
- Query the Past with Time Travelling Snapshots
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#### Module 15: Advanced Insights

- Think, Analyze, and Share Insights like a Data Scientist

#### Topics Covered

- Highlight Analytics Challenges Faced by Data Analysts
- Compare Big Data On-Premise vs on the

- Compare GCP Tools for Analysts, Data Scientists, and Data Engineers
- Lab: Exploring Datasets with Google BigQuery
- Compare Common Data Exploration Techniques
- Learn How to Code High Quality Standard SQL
- Explore Google BigQuery Public Datasets
- Visualization Preview: Google Data Studio
- Lab: Troubleshoot Common SQL Errors
- Walkthrough of a BigQuery Job
- Calculate BigQuery Pricing: Storage, Querying, and Streaming Costs
- Optimize Queries for Cost
- Lab: Calculate Google BigQuery Pricing
- Examine the 5 Principles of Dataset Integrity
- Characterize Dataset Shape and Skew
- Clean and Transform Data using SQL
- Clean and Transform Data using a new UI: Introducing Cloud Dataprep
- Lab: Explore and Shape Data with Cloud Dataprep
- Compare Permanent vs Temporary Tables
- Save and Export Query Results
- Performance Preview: Query Cache
- Lab: Creating new Permanent Tables
- Query from External Data Sources
- Avoid Data Ingesting Pitfalls
- Ingest New Data into Permanent Tables
- Discuss Streaming Inserts
- Lab: Ingesting and Querying New Datasets
- Overview of Data Visualization Principles
- Exploratory vs Explanatory Analysis Approaches
- Demo: Google Data Studio UI
- Connect Google Data Studio to Google BigQuery
- Lab: Exploring a Dataset in Google Data Studio
- Merge Historical Data Tables with UNION
- Introduce Table Wildcards for Easy Merges
- Review Data Schemas: Linking Data Across Multiple Tables
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- Schema Review: The Good, The Bad, and The Ugly
- Arrays and Nested Data in Google BigQuery
- Lab: Querying Nested and Repeated Data
- Create Case Statements and Calculated Fields
- Avoid Performance Pitfalls with Cache considerations
- Share Dashboards and Discuss Data

Combine and Enrich your Datasets with more Data

#### Topics Covered

- Highlight Analytics Challenges Faced by Data Analysts
- Compare Big Data On-Premise vs on the Cloud
- Learn from Real-World Use Cases of Companies Transformed through Analytics on the Cloud
- Navigate Google Cloud Platform Project Basics
- Lab: Getting started with Google Cloud Platform
- Walkthrough Data Analyst Tasks, Challenges, and Introduce Google Cloud Platform Data Tools
- Demo: Analyze 10 Billion Records with Google BigQuery
- Explore 9 Fundamental Google BigQuery Features
- Compare GCP Tools for Analysts, Data Scientists, and Data Engineers
- Lab: Exploring Datasets with Google BigQuery
- Compare Common Data Exploration Techniques
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- Lab: Calculate Google BigQuery Pricing
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#### Cloud

- Learn from Real-World Use Cases of Companies Transformed through Analytics on the Cloud
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- Compare Data Warehouse Storage Methods



- Access considerations
- Lab: Visualizing Insights with Google Data Studio
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- Lab: Reading a Google Cloud Datalab notebook
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- Avoid Access Pitfalls
- Review Members, Roles, Organizations, Account Administration, and Service Accounts

#### Module 5: Cleaning and Transforming your Data

#### Wrangle your Raw Data into a Cleaner and Richer Dataset

#### Topics Covered

- Highlight Analytics Challenges Faced by Data Analysts
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- Learn from Real-World Use Cases of Companies Transformed through Analytics on the Cloud
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- Lab: Getting started with Google Cloud Platform
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- Lab: Exploring Datasets with Google BigQuery
- Compare Common Data Exploration Techniques
- Learn How to Code High Quality Standard SQL

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- Lab: Reading a Google Cloud Datalab notebook
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- Lab: Reading a Google Cloud Datalab notebook
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- Avoid Access Pitfalls
- Review Members, Roles, Organizations, Account Administration, and Service Accounts

#### Module 16: Data Access

- Keep Data Security top-of-mind in the Cloud

#### Topics Covered

- Highlight Analytics Challenges Faced by Data Analysts
- Compare Big Data On-Premise vs on the Cloud
- Learn from Real-World Use Cases of Companies Transformed through Analytics on the Cloud
- Navigate Google Cloud Platform Project Basics

- Explore Google BigQuery Public Datasets
- Visualization Preview: Google Data Studio
- Lab: Troubleshoot Common SQL Errors
- Walkthrough of a BigQuery Job
- Calculate BigQuery Pricing: Storage, Querying, and Streaming Costs
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- Review SQL Case Statements
- Introduce Analytical Window Functions
- Safeguard Data with One-Way Field Encryption
- Discuss Effective Sub-query and CTE

## Module 10: Google BigQuery Table Deep Dive

What sets Cloud Architecture apart?

### Topics Covered

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- Compare Big Data On-Premise vs on the Cloud
- Learn from Real-World Use Cases of Companies Transformed through Analytics on the Cloud
- Navigate Google Cloud Platform Project Basics
- Lab: Getting started with Google Cloud Platform
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- Lab: Getting started with Google Cloud Platform
- Walkthrough Data Analyst Tasks, Challenges, and Introduce Google Cloud Platform Data Tools
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- Introducing Cloud Datalab
- Lab: Reading a Google Cloud Datalab notebook
- Compare IAM and BigQuery Dataset Roles
- Avoid Access Pitfalls
- Review Members, Roles, Organizations, Account Administration, and Service Accounts

#### Module 6: Storing and Exporting Data

- Create new Tables and Exporting Results

- Exploratory vs Explanatory Analysis Approaches
- Demo: Google Data Studio UI
- Connect Google Data Studio to Google BigQuery
- Lab: Exploring a Dataset in Google Data Studio
- Merge Historical Data Tables with UNION
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Account Administration, and Service Accounts

## Module 11: Schema Design and Nested Data Structures

### Model your Datasets for Scale in Google BigQuery

#### Topics Covered

- Highlight Analytics Challenges Faced by Data Analysts
- Compare Big Data On-Premise vs on the Cloud
- Learn from Real-World Use Cases of Companies Transformed through Analytics on the Cloud
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- Introducing Cloud Datalab
- Lab: Reading a Google Cloud Datalab notebook
- Compare IAM and BigQuery Dataset

#### Roles

- Avoid Access Pitfalls
- Review Members, Roles, Organizations, Account Administration, and Service Accounts

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### Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

[info@globalknowledge.co.uk](mailto:info@globalknowledge.co.uk)

[www.globalknowledge.co.uk](http://www.globalknowledge.co.uk)

Global Knowledge, Mulberry Business Park, Fishponds Road, Wokingham Berkshire RG41 2GY UK