

Google Data Analytics Professional Certificate

Google data analytics certificate. Learn SQL, R, Tableau, and spreadsheets. No experience needed. Finish in under 6 months.

Data Analytics Instructor: Nick Williams • 5 sections • 47 lessons • 63.00h total

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About this course

This certificate program, built by Google, covers the full data analytics lifecycle: asking business questions, preparing and processing data, performing analysis, creating visualizations, and communicating insights. You will gain practical skills in SQL, R, Tableau, spreadsheets, and AI-driven workflows through real projects and interactive labs, building a portfolio for entry-level roles.

You will learn to clean and validate datasets, write advanced SQL queries, apply statistical analysis in R with Tidyverse, design Tableau dashboards, and use AI to automate tasks and generate deeper insights. The program includes a capstone case study and career resources to help you transition into a data analytics role with a Google certificate.

Course curriculum

Foundations of Data Analytics

- **How Data Analysts Drive Business Decisions (12m)**
Explore the role of a data analyst, the types of problems they solve, and the impact of data-driven decisions in real companies.
- **The Data Analytics Lifecycle: A Step-by-Step Framework (18m)**
Walk through the six phases of data analysis, ask, prepare, process, analyze, share, act, and apply them to a sample project.
- **Understanding Data Types and Structures (15m)**
Learn to identify structured vs. unstructured data, quantitative vs. qualitative data, and choose the right formats for analysis.
- **Setting Up Your Analytics Toolkit: Spreadsheets and SQL (10m)**
Get hands-on with Google Sheets and Microsoft Excel basics, plus an introduction to SQL environments for querying.
- **Crafting Effective Business Questions (14m)**
Use the SMART framework to turn stakeholder needs into clear, measurable questions that guide your analysis.
- **Data Ethics and Bias Awareness in Analysis (20m)**
Recognize common biases in datasets, apply ethical decision-making principles, and ensure fairness in your insights.
- **Building Your First Data Analyst Portfolio (10m)**
Learn what employers look for in a portfolio and start documenting your projects with clear case studies.

Data Preparation and Cleaning

- **Data Sourcing and Collection Strategies (16m)**
Identify reliable data sources, use APIs and web scraping basics, and organize datasets for consistency.
- **Spreadsheet Essentials: Formulas and Functions (22m)**
Master VLOOKUP, INDEX-MATCH, IF statements, and text functions to manipulate and prepare data in Excel and Google Sheets.
- **Data Cleaning Fundamentals: Handling Missing Values (18m)**
Detect missing data, apply imputation techniques, and document your cleaning process for reproducibility.
- **Removing Duplicates and Standardizing Data (14m)**
Use built-in tools to deduplicate records, normalize text, and ensure consistent formatting across datasets.
- **Validating Data Quality and Accuracy (12m)**
Create data validation rules, perform consistency checks, and verify cross-field relationships to maintain quality.

- **Transforming Data with Pivot Tables (20m)**
Summarize and reshape data using pivot tables, calculated fields, and grouping to uncover quick insights.
- **SQL Basics: SELECT, FROM, and WHERE (18m)**
Write your first SQL queries to retrieve, filter, and sort data from relational databases.
- **SQL Aggregations and GROUP BY (16m)**
Use COUNT, SUM, AVG, and GROUP BY to aggregate data and generate summary statistics directly in SQL.
- **Joining Tables in SQL for Richer Insights (24m)**
Master INNER, LEFT, RIGHT, and FULL OUTER joins to combine multiple tables and expand your analysis scope.
- **Advanced SQL: Subqueries and CTEs (20m)**
Simplify complex queries with subqueries and Common Table Expressions (CTEs) for better readability and performance.

Statistical Analysis and Programming in R

- **Introduction to R and RStudio (14m)**
Set up R and RStudio, navigate the interface, and run your first scripts for basic calculations and data exploration.
- **Data Structures in R: Vectors, Data Frames, and Lists (18m)**
Understand R's core data types and structures, and practice creating and manipulating them for analysis.
- **Data Import and Export with R (12m)**
Load CSV, Excel, and SQL data into R, and export results to shareable formats like CSV and PDF.
- **Data Wrangling with Tidyverse: dplyr Basics (22m)**
Use dplyr verbs, filter, select, mutate, arrange, and summarize, to clean and transform datasets efficiently.
- **Tidyverse Deep Dive: Pipes and Grouped Operations (16m)**
Chain operations with pipes (%>%), perform grouped summaries, and write readable, efficient R code.
- **Descriptive Statistics in R (14m)**
Calculate measures of central tendency, spread, and distribution shape using base R and dplyr.
- **Data Visualization with ggplot2 (20m)**
Create compelling plots, scatterplots, histograms, bar charts, and customize themes for professional presentations.
- **Hypothesis Testing and Confidence Intervals (18m)**
Apply t-tests, chi-square tests, and confidence intervals to validate assumptions and draw conclusions from data.

Data Visualization and Storytelling with Tableau

- **Tableau Fundamentals: Connecting to Data Sources (12m)**
Import data into Tableau, understand dimensions and measures, and navigate the workspace for effective analysis.

- **Building Basic Charts: Bar, Line, and Pie Charts (16m)**
Create and customize common chart types to communicate trends, comparisons, and proportions clearly.
- **Advanced Visualizations: Scatter Plots and Heat Maps (18m)**
Design scatter plots for correlation analysis and heat maps for geographic or matrix-based insights.
- **Interactive Dashboards: Filters and Parameters (22m)**
Build interactive dashboards with filters, parameters, and actions to let stakeholders explore data dynamically.
- **Calculated Fields and Table Calculations (20m)**
Write calculated fields for custom metrics and use table calculations for running totals, percent of total, and more.
- **Storytelling with Data: Best Practices (14m)**
Structure a data story, choose the right visuals, and design presentations that drive action and clarity.
- **Designing for Impact: Color, Layout, and Accessibility (12m)**
Apply design principles to make dashboards visually appealing, accessible, and easy to interpret for all audiences.
- **Publishing and Sharing Tableau Workbooks (10m)**
Publish dashboards to Tableau Public or Server, embed them in reports, and share insights with stakeholders.
- **Real-World Dashboard Project: Sales Performance (28m)**
Build a complete sales performance dashboard from scratch, incorporating multiple data sources and interactive elements.

AI Integration and Capstone Project

- **Introduction to AI in Data Analytics (15m)**
Explore how AI tools can automate data cleaning, generate insights, and enhance predictive capabilities in your workflow.
- **Automating Data Cleaning with AI Tools (18m)**
Use AI-powered tools to detect anomalies, suggest transformations, and streamline repetitive cleaning tasks.
- **AI-Driven Exploratory Data Analysis (16m)**
Leverage AI to identify patterns, correlations, and outliers in your data, accelerating initial analysis phases.
- **Generating Insights with Natural Language Queries (12m)**
Ask questions in plain language and get automated summaries, charts, and insights using modern AI platforms.
- **AI-Enhanced Predictive Modeling Basics (20m)**
Apply simple AI models for forecasting and classification, and interpret results to support business decisions.
- **Capstone Project: Defining Your Business Problem (10m)**
Choose a real-world scenario, define SMART questions, and outline your analysis plan for the capstone.

- **Capstone Project: Data Collection and Preparation (25m)**
Gather and clean your dataset, document your process, and validate data quality for the capstone analysis.
- **Capstone Project: Analysis and Visualization (30m)**
Perform statistical analysis in R, create compelling Tableau dashboards, and uncover key insights for your scenario.
- **Capstone Project: Crafting Your Data Story (20m)**
Synthesize findings into a clear narrative, prepare a presentation, and recommend actionable next steps.
- **Presenting Your Capstone to Stakeholders (15m)**
Practice delivering your analysis with confidence, handle questions, and communicate technical details clearly.
- **Building a Standout Data Analyst Resume (12m)**
Highlight your certificate, projects, and technical skills to attract recruiters and land entry-level interviews.
- **Navigating the Job Market: Networking and Interviews (14m)**
Use LinkedIn effectively, prepare for technical interviews, and leverage Google's career resources for job search success.
- **Continuing Your Learning: Advanced Topics and Certifications (10m)**
Explore next steps like Python for data analysis, machine learning, and specialized certifications to advance your career.

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