

# Google Data Analytics Certificate



Key Competencies & Job Mapping

## Developing talent for in-demand jobs

Nearly two-thirds of all new jobs created since 2010 require either high- or medium-level digital skills,<sup>1</sup> but 1 in 3 American workers have very limited or no digital skills.<sup>2</sup> To help bridge that gap, we've trained more than 8 million Americans on digital skills to date and invested in building tools and trainings to help create pathways to high-quality jobs.

Google Career Certificates provide job seekers with access to more than 1.5 million in-demand jobs<sup>3</sup> across the fields of data analytics, digital marketing & e-commerce, IT support, project management, and user experience (UX) design. These certificates are taught and developed by Google employees working in these fields; they are hands-on, practical, and rigorous. The certificates can be completed in under six months part-time.

### GOOGLE DATA ANALYTICS CERTIFICATE

The Google Data Analytics Certificate is designed to prepare learners for entry-level roles in data analytics. It is the #1 most popular certificate on Coursera since it launched in March 2021.

Industry experts - like Tableau, Accenture, and Deloitte - collaborated with us by offering resources, feedback, and beta testing the certificate content.

# 380K+

in-demand job openings  
in data analytics <sup>4</sup>

# 75%

of Google Career Certificate  
graduates report an  
improvement in their career  
trajectory (e.g. new job or  
career, promotion or raise)  
within 6 months of certificate  
completion <sup>5</sup>

### THE GOOGLE DATA ANALYTICS CERTIFICATE PREPARES LEARNERS FOR IN-DEMAND JOBS SUCH AS:

- Junior data analyst
- Associate data analyst
- Finance analyst
- Operations analyst
- Data technician
- Business performance analyst
- Marketing analyst
- Healthcare analyst

<sup>1</sup> Brookings, 2017

<sup>2</sup> National Skills Coalition, 2020

<sup>3</sup> Burning Glass Labor Insight, Feb. 1, 2021 - Jan. 31, 2022, U.S.

<sup>4</sup> Burning Glass Labor Insight, February 1, 2021 - January 31, 2022, U.S.

<sup>5</sup> Program graduate survey responses, U.S., 2021

# Program overview

Upon completing the **Google Data Analytics Certificate**, program graduates will:

- Have working knowledge of essential data analysis platforms (spreadsheets, SQL, Tableau, R programming) and when to use them in the data lifecycle.
- Understand how to translate a business question into a data analysis exercise, including transforming, visualizing, and modeling data.
- Know how to distill findings into actionable takeaways.
- Have the opportunity to complete a capstone project to be shared on their resume or added to their portfolio to showcase their skills to hiring partners.



Finding patterns



Coding



Visualizing



Analyzing



Planning



Sharing

## Course 1

Foundations: Data, Data, Everywhere

## Course 2

Ask Questions to Make Data-Driven Decisions

## Course 3

Prepare Data for Exploration

## Course 4

Process Data from Dirty to Clean

## Course 5

Analyze Data to Answer Questions

## Course 6

Share Data Through the Art of Visualization

## Course 7

Data Analysis with R Programming

## Course 8

Capstone: Complete a Case Study

### CONTENT BREAKDOWN:



297

Videos



223

Readings



136

Quizzes



86

Hands-on Exercises



40

Writing Assignments



41

Discussion Prompts

# Course 1 — Foundations: Data, Data, Everywhere

In this course, we cover foundational data analytics terminology and learners gain a deeper understanding of the role and responsibilities of a data analyst. We also introduce the kinds of jobs learners might pursue after completing this program.

## By the end of this course, learners will be able to:

- Gain an understanding of the practices and processes used by a junior or associate data analyst in their day-to-day job.
- Learn about key analytical skills (data cleaning, data analysis, data visualization) and tools (spreadsheets, SQL, Tableau, R programming).
- Discover a wide variety of terms and concepts relevant to the role of a junior data analyst, such as the data life cycle and the data analysis process.
- Evaluate the role of analytics in the data ecosystem.
- Conduct an analytical thinking self-assessment.
- Explore job opportunities available upon program completion, and learn about best practices in the job search.

## SKILLS ACQUIRED:

- ❑ Spreadsheet basics
- ❑ Database and query basics
- ❑ Data visualization (DataViz) basics

## TOPICS:

- ★ Introducing data analytics
- ★ Thinking analytically
- ★ Exploring the wonderful world of data
- ★ Setting up a data toolbox
- ★ Discovering data career possibilities

## CONTENT BREAKDOWN:

	36	Videos
	28	Readings
	19	Quizzes
	7	Hands-on Exercises
	9	Writing Assignment
	8	Discussion Prompts

# Course 2 — Ask Questions to Make Data-Driven Decisions

In this course, we build on the topics introduced in the first course and cover how to ask effective questions to make data-driven decisions, while connecting with stakeholders' needs.

## By the end of this course, learners will be able to:

- Learn about effective questioning techniques that can help guide analysis.
- Gain an understanding of data-driven decision-making and how data analysts present findings.
- Explore a variety of real-world business scenarios to support an understanding of questioning and decision-making.
- Discover how and why spreadsheets are an important tool for data analysts.
- Examine the key ideas associated with structured thinking and how they can help analysts better understand problems and develop solutions.
- Learn strategies for managing the expectations of stakeholders while establishing clear communication with a data analytics team to achieve business objectives.

## SKILLS ACQUIRED:

- ❑ Spreadsheet formulas & functions
- ❑ Asking SMART and effective questions
- ❑ Dashboard basics, incl. Tableau
- ❑ Problem solving with data
- ❑ Managing team and stakeholder expectations

## TOPICS:

- ★ Asking effective questions
- ★ Making data-driven decisions
- ★ Learning spreadsheet basics
- ★ Always remember the stakeholder

## CONTENT BREAKDOWN:

	36	Videos
	25	Readings
	19	Quizzes
	7	Hands-on Exercises
	6	Writing Assignment
	4	Discussion Prompts

# Course 3 — Prepare Data for Exploration

In this course, we build on the topics introduced in the first two courses. We also cover how to use tools like spreadsheets and SQL to extract and make use of the right data for key objectives and how to organize and protect data.

## By the end of this course, learners will be able to:

- Find out how analysts decide which data to collect for analysis.
- Learn about structured and unstructured data, data types, and data formats.
- Discover how to identify different types of bias in data to help ensure data credibility.
- Explore how analysts use spreadsheets and SQL with databases and data sets.
- Examine open data and the relationship between and importance of data ethics and data privacy.
- Gain an understanding of how to access databases and extract, filter, and sort the data they contain.
- Learn the best practices for organizing data and keeping it secure.

## SKILLS ACQUIRED:

- ❑ Understanding data types, fields, and values
- ❑ Writing simple queries
- ❑ Metadata in data analytics
- ❑ SQL functions

## TOPICS:

- ★ Data types and data structures
- ★ Understanding bias, credibility, privacy, ethics, and access
- ★ Databases: where data lives
- ★ Organizing and protecting your data
- ★ [optional] Engaging in the data community

## CONTENT BREAKDOWN:

	44	Videos
	31	Readings
	20	Quizzes
	11	Hands-on Exercises
	4	Writing Assignment
	2	Discussion Prompts

# Course 4 — Process Data from Dirty to Clean

In this course, we build on topics introduced in previous courses and we also explore how to check and clean data using spreadsheets and SQL, as well as how to verify and report data cleaning results.

## By the end of this course, learners will be able to:

- Learn how to check for data integrity.
- Discover data cleaning techniques using spreadsheets.
- Develop basic SQL queries for use on databases.
- Apply basic SQL functions for cleaning and transforming data.
- Gain an understanding of how to verify the results of cleaning data.
- Explore the elements and importance of data cleaning reports.

## SKILLS ACQUIRED:

- ❑ Statistics, hypothesis testing, and margin of error
- ❑ Tools and processes for data cleansing
- ❑ Data integrity

## TOPICS:

- ★ Before you clean, check for integrity
- ★ All about clean data
- ★ Cleaning data in SQL
- ★ Verify and report your cleaning results
- ★ [optional] Adding data to your resume

## CONTENT BREAKDOWN:

	43	Videos
	27	Readings
	16	Quizzes
	10	Hands-on Exercises
	4	Writing Assignment
	3	Discussion Prompts

# Course 5 — Analyze Data to Answer Questions

In this course, we explore the “analyze” phase of the data analysis process. We cover how to organize and format your data using spreadsheets and SQL to help you look at and think about your data in different ways. We also explore how to perform complex calculations on data to complete business objectives. Additionally, we teach how to use formulas, functions, and SQL queries to conduct analysis.

## By the end of this course, learners will be able to:

- Learn how to organize data for analysis.
- Discover the processes for formatting and adjusting data.
- Gain an understanding of how to aggregate data in spreadsheets and by using SQL.
- Use formulas and functions in spreadsheets for data calculations.
- Learn how to complete calculations using SQL queries.

## SKILLS ACQUIRED:

- Sorting and filtering data with SQL
- Spreadsheet calculations
- SQL calculations
- Data validation
- Temporary and pivot tables

## TOPICS:

- ★ Organizing data to begin analysis
- ★ Formatting and adjusting data
- ★ Aggregating data for analysis
- ★ Performing data calculations

## CONTENT BREAKDOWN:

	41	Videos
	28	Readings
	19	Quizzes
	14	Hands-on Exercises
	4	Writing Assignment
	3	Discussion Prompts

# Course 6 — Share Data Through the Art of Visualization

In this course, we explore how to visualize and present data findings during the data analysis process. We demonstrate how data visualizations, such as visual dashboards, can help bring data to life. We also explore Tableau, a data visualization platform that helps create effective visualizations for presentations.

## By the end of this course, learners will be able to:

- Examine the importance of data visualization.
- Learn how to form a compelling narrative through data stories.
- Gain an understanding of how to use Tableau to create dashboards and dashboard filters.
- Discover how to use Tableau to create effective visualizations.
- Explore the principles and practices involved with effective presentations.
- Learn how to consider potential limitations associated with the data in your presentations.
- Understand how to apply best practices to a Q&A with your audience.

## SKILLS ACQUIRED:

- ❑ Design thinking
- ❑ Tableau software
- ❑ Data-driven storytelling
- ❑ Dashboards and dashboard filters

## TOPICS:

- ★ Visualizing data
- ★ Creating data visualizations with Tableau
- ★ Crafting data stories
- ★ Developing presentations and slideshows

## CONTENT BREAKDOWN:

	42	Videos
	26	Readings
	10	Quizzes
	10	Hands-on Exercises
	8	Writing Assignment
	7	Discussion Prompts

# Course 7 — Data Analysis with R Programming

In this course, we explore the programming language known as R. We cover how to use RStudio, the environment that allows data analysts to work with R. This course also covers the software applications and tools that are unique to R, such as R packages. We also discover how to clean, organize, analyze, visualize, and report data in new and more powerful ways using R.

## By the end of this course, learners will be able to:

- Examine the benefits of using the R programming language.
- Discover how to use RStudio to apply R to data analysis.
- Explore the fundamental concepts associated with programming in R.
- Explore the contents and components of R packages including the Tidyverse package.
- Gain an understanding of dataframes and their use in R.
- Discover the options for generating visualizations in R.
- Learn about R Markdown for documenting R programming.

## SKILLS ACQUIRED:

- ❑ R programming functions, variables, data types, pipes, and vectors
- ❑ Coding, writing functions, accessing and cleaning data, and generating visualizations in R

## TOPICS:

- ★ Programming and data analytics
- ★ Programming using Rstudio
- ★ Working with data in R programming
- ★ More about visualizations, aesthetics, and annotations
- ★ Documentation and reports

## CONTENT BREAKDOWN:

	39	Videos
	35	Readings
	21	Quizzes
	23	Hands-on Exercises
	2	Writing Assignment
	8	Discussion Prompts

# Course 8 — Capstone: Complete a Case Study

In this course, learners have the opportunity to complete an optional case study, which help them prepare for the data analytics job hunt. Case studies are commonly used by employers to assess analytical skills. For their case study, they'll choose an analytics-based scenario. They'll then ask questions, prepare, process, analyze, visualize and act on the data from the scenario. We also cover other useful job hunt skills through videos with common interview questions and responses, helpful materials to build a portfolio online, and more.

## By the end of this course, learners will be able to:

- Learn the benefits and uses of case studies and portfolios in the job search.
- Explore real world job interview scenarios and common interview questions.
- Discover how case studies can be a part of the job interview process.
- Examine and consider different case study scenarios.
- Have the chance to complete your own case study for your portfolio.

## SKILLS ACQUIRED:

- ❑ Building a job portfolio
- ❑ Practical, real-world problem solving
- ❑ Clear presentation of data findings
- ❑ Showcasing data analytics skills, knowledge, and technical expertise

## TOPICS:

- ★ Learn about capstone basics
- ★ [optional] Building your portfolio
- ★ [optional] Using your portfolio
- ★ Putting your certificate to work

## CONTENT BREAKDOWN:

	16	Videos
	23	Readings
	5	Quizzes
	4	Hands-on Exercises
	4	Writing Assignment
	6	Discussion Prompts