General Assembly
Course Curriculum

DATA ANALYTICS

GA.CO/AN

3 Overview

4 Students

5 Curriculum
Projects & Units

12 Frequently
Asked Questions

OVERVIEW

THE FRAMEWORK

This course will teach you how to use large data sets to make critical decisions confidently. This course was created for analysts, digital marketers, sales managers, product managers and data newbies looking to learn the essentials of data analysis. You'll use industry tools, Excel, SQL, and Tableau, to analyze large real world data sets.

Additionally, you will be able to create data dashboards and various data visualizations to communicate insights. This course will culminate in a presentation of your data analysis and insights to your classmates and instructional team.

By the end of the course, you will be able to:

- Use Excel, SQL, and Tableau to collect, clean, and analyze large datasets
- Present data driven insights to key stakeholders using data visualization and dashboards
- Tell compelling stories with your data

STUDENTS

MANAGERS

This course enables managers to effectively use data to make more data driven plans. For example, a manager will be able to use data about a team's performance to plan resource allocation for the next quarter.

SALES MANAGERS

This course enables sales managers to effectively define sales strategies based on previous performances. For example, sales managers will be able to segment potential customer and determine customized strategies for each customer segment.

DIGITAL MARKETERS

This course enables digital marketers to utilize data about past marketing campaigns to create more effective campaigns. For example, a digital marketer will be able to segment potential customers to create targeted email or social media campaigns and analyze the campaign results.

DATA ANALYSTS

This course provides data analysts with the ability to solidify their data analysis skills. For example, a data analyst will become an expert on the tools of data analysis and practice analyzing a wide array of data sets.

NEWBIES

This course provides a newbie hands-on practice using the tools of data analysis: Excel, SQL, and Tableau.

PROJECTS

FINAL PROJECT

For the Data Analytics final project, you will collect, clean and analyze a data set to solve a real world problem. From this data, you will segment the data set and perform analysis. Following your analysis, you will create a presentation to share your insights.

In order for your project to be considered a success, you will complete the following steps:

- Identify a problem
- Obtain the data
- Understand the data
- Prepare, clean, and format the data
- Analyze the data
- Create visualizations or a dashboard to display insights both numerically and graphically.
- Present high level insights and the resulting actions to key stakeholders.

As you complete elements of your final project, you will be required to present materials and receive feedback from your instructional team and classmates as well as industry experts.

Our instructors are on hand to validate the feasibility and manage the scope of your project.

UNITS

ONLINE ONBOARDING (PRE-WORK)
FUNDAMENTALS OF DATA AND EXCEL

- Welcome to Excel
- Getting Started with Data in Excel
- Cleaning Data in Excel
- Visualizing Data in Excel
- Introduction to Statistics in Excel

UNIT 1:
INTERPRETATION

- The Value of Data + Data Narratives
- Excel Fundamentals
- Data Referencing
- Data Aggregation
- Data Visualization in Excel
- Statistics in Excel

UNIT 2:
QUERYING AND ORGANIZING DATA IN SQL

- Foundations of Databases and SQL
- Combining Data in SQL
- Cleaning Data and Creating Multiple Joins in SQL
- Using Logic in SQL
- Subqueries
- Applying SQL Functions

UNIT 3:
VISUALIZATION

- Visualizing and Mapping Data in Tableau
- Text Manipulation in Tableau
- Designing Data Dashboards in Tableau
- Working with Data Across Excel, SQL and Tableau
- Final Project Presentation

0 ONLINE ONBOARDING (PRE-WORK)

WELCOME TO EXCEL
- Introduction on how to use Excel.

GETTING STARTED WITH DATA IN EXCEL
- Navigate the Excel interface.
- Apply Excel formats, formulas, functions, and cell referencing.

CLEANING DATA IN EXCEL
- Clean a large messy datasets by removing duplicate rows and performing text manipulations.
- Transform and rearrange columns and rows to structure data for analysis.
- Manipulate data formats to gain insights on how to analyze data.

VISUALIZING DATA IN EXCEL
- Derive insights from data by highlighting cells based on conditionals.
- Use scatter plots, bar graphs, and histograms to visualize data.
- Apply the best practices to build a dashboard.
- Demonstrate good visual design without overloading a dashboard with complexity.

INTRODUCTION TO STATISTICS IN EXCEL
- Describe the value of descriptive and inferential statistics.
- Calculate and use the mean, median, mode, range, and variance to describe data and identify outliers.
- Explain the importance of segmentation.
- Use sample data to make predictions about a larger population.
- Create a single variable linear regression model.

1 INTERPRETATION

THE VALUE OF DATA + DATA NARRATIVES

- Explain our Data Analysis course objectives and tools.
- Explore the Data Framework and iterative problem-solving.
- Discuss the value and impact of data-driven decision making.
- Introduce the specifics of Project 1
- Discuss a brief history of visual analytics.
- Survey common presentation strategies.
- Practice applying techniques to a sample business case.
- Defined some methods for selecting appropriate visuals.

EXCEL FUNDAMENTALS

- Discuss data cleaning best practices.
- Review strategies to prepare and clean a data set.
- Practice asking the "right" questions of our data.

DATA REFERENCING

- Build relationships between cells in Excel.
- Use named ranges to easily reference data subsets.
- Manipulate data sets using VLOOKUP and HLOOKUP.
- Look up values in other tables using INDEX and MATCH.

DATA AGGREGATION

- Learn to apply Excel aggregation commands to our data, including:
    - MIN, MAX, SUM, AVERAGE, COUNT, and their conditional variants.
    - COUNTIF, COUNTA, COUNTIFS, and COUNTBLANKS for summarizing data.
- Summarize data using PivotTables and manage common problems.
- Explore data using conditional formatting for categorization and analysis.

DATA VISUALIZATION IN EXCEL

- Learn strategies for visualizing data in Excel
- Identify best practices for different types of graphs.
- Create scatterplots, line graphs, and dashboards.

STATISTICS IN EXCEL

- Survey and define different types of statistical analysis.
- Demonstrate basic statistical functions in Excel.
- Practice applying statistical functions in Excel.

1 INTERPRETATION (CONTINUED)

PROJECT 1 PRESENTATION

- Clea and prepare data sets.
- Visualize, summarize, and present data.

2 QUERYING AND ORGANIZING DATA IN SQL

FOUNDATIONS OF DATABASES AND SQL

- Review the market trend toward self-serve data access (using SQL).
- Learn about database structures and the role of structured query language (SQL).
- Introduce SQL's SELECT statement with WHERE clauses.
- Explore practice data, using the Iowa Liquor Sales Database.
- Practice a selection of query command tools, including: DISTINCT, COUNT, AND, OR, and CAST.
- Apply commenting to code using -- and /* comment */.
- Use SQL conditional operators =, !=, >, <, IN, NOT IN, and BETWEEN.
- Use the SQL Boolean operator OR to include only the desired data.
- Introduce advanced SQL commands GROUP BY and HAVING to filter data.
- Use aggregate functions MIN, MAX, SUM, AVG, and COUNT.
- Apply calculations to fields using the order of operations.

COMBINING DATA IN SQL

- Learn the SQL tools for appending similar data together.
- Explore combining data from different tables together.
- Use the SQL commands JOIN and UNION to answer data questions.
- Introduce the SQL structure to JOIN data from multiple sources.

CLEANING DATA AND CREATING MULTIPLE JOINS IN SQL

- Create relationships between tables using:
    - INNER, RIGHT, and LEFT JOINs
    - FULL OUTER JOINs
    - EXCEPTION JOINs
    - CROSS JOIN
- Optimize queries using WHERE, LIMIT, and COALESCE.

2 SQL/ORGANIZATION (CONTINUED)

USING LOGIC IN SQL
- Explain the differences between NULL and zero.
- Explore the issues of math equations and NULLs.
- Use SQL NULL to create Boolean functions and handle zeros.
- Use CASE statements to add "IF THEN ELSE" logic to SQL.

SUBQUERIES
- Ask two or more questions in a single SQL query.
- Nest queries within different parts of SELECT statements.
- Perform multi-step aggregations or filtering within one query.

APPLYING SQL FUNCTIONS
- Apply string functions to manipulate how data is presented.
- Apply math functions to add value to the data you are working with.
- Apply date logic to your SQL.

PROJECT 2 PRESENTATION
- Prepare, analyze, interpret, and communicate consumer purchasing data.

3 VISUALIZATION

FUNDAMENTALS OF TABLEAU
- Connect and prepare data.
- Navigate the Tableau interface.
- Build graphs, calculations, dashboards and stories.
- Work with dates in Tableau.

VISUALIZATION & TEXT MANIPULATION
- Create a number of calculated fields to clean and manipulate strings of text using LEFT,
- MID, FIND, and REPLACE.
- Survey historical examples and use cases for data narratives.
- Build a variety of visualizations in Tableau.

3 VISUALIZATION (CONTINUED)

SOCIAL MEDIA ANALYSIS (TEXT & SENTIMENT)

- Locate and use Tableau's built-in web data connector (WDC).
- Use the Twitter web data connector to bring tweet data into Tableau.
- Analyze and visualize your data pull in Tableau in order to answer basic questions.
- Create a tweet analysis dashboard with custom filters to represent your data.

CALCULATIONS & ANALYSIS

- Create different types of calculated fields in order to analyze sample data.
- Define and demonstrate how to use quick table calculations.
- Apply new skills in order to analyze and visualize sample data.

DASHBOARD AND STORYPOINTS

- Develop interactive Tableau dashboards.
- Practice analyzing data in Tableau.
- Connect to data and build dashboards in Tableau.
- Create actions within Tableau dashboards.
- Apply your new skills to analyze some sample call records data.

FINAL PROJECT PRESENTATION

- Communicate data and results using data storytelling techniques and resources shared in this class

FAQS

WHY IS THIS COURSE RELEVANT TODAY?

Data is now an integral part of every organization. To be successful in today's data-driven landscape, all organizations need to learn how to leverage data to make critical business decisions. It is a requirement for every employee to know how to analyze data. In this course, you will learn how to use large amounts of data to help your organization make critical decisions.

WHAT PRACTICAL SKILL SETS CAN I EXPECT TO HAVE UPON COMPLETION OF THE COURSE?

Using Excel and SQL, you will learn how to collect, clean and analyze data from multiple sources including the web, a local file and a relational database. You will be able to visualize data using Tableau. Additionally, you will be able to use this analysis to make data driven decisions. In this course, you will practice with real world data sets and problems to contextualize how analytics fit into the business world.

WHO WILL I BE SITTING NEXT TO IN THIS COURSE?

In this course, you will be sitting next to other people interested in improving their analytical skills. These people will be digital marketers, managers, financial analysts and data analysts.

WHAT CAN I EXPECT BY THE END OF THE COURSE?

By the end of the course, you can expect to be able to acquire, parse and clean data using both Excel and SQL. You should also be able to analyze and make critical business decisions based on your analysis. Additionally, you should also be able to communicate your findings to both a non-technical and technical audience in both written and verbal formats.

WILL THERE BE ANY WORK TO COMPLETE PRIOR TO THE START OF THE COURSE?

Yes. There will be approximately 15 hours of work required prior to starting the course. This work is completed online, at your own pace.

SHOULD I COME EQUIPPED WITH ANYTHING?

Yes. Please come prepared with a laptop equipped with Microsoft Excel.