Data Science with Microsoft Excel and Google Sheets

This curriculum is crafted to empower you with the skills to analyse, visualise, and interpret data using two of the most potent tools available today: Microsoft Excel and Google Sheets. Designed for beginners and seasoned professionals alike, this comprehensive program covers everything from basic data manipulation to advanced data analysis techniques over eight Units.

Our hands-on approach ensures that you will not only learn theoretical concepts but also apply them to real-world data science problems through practical assignments and a capstone project. Whether your goal is to enhance your professional skills, support your academic endeavours, or explore the vast field of data science, this curriculum offers the foundation you need.

No prior experience with Excel or Google Sheets is required. We begin with the fundamentals and gradually progress to more complex topics, enabling you to master the tools at your own pace. By the end of this journey, you will be well-equipped to tackle data challenges and make data-driven decisions confidently.

Let’s dive into the world of data science together and unlock the full potential of Microsoft Excel and Google Sheets. Welcome aboard!

Duration: 1 month, minimum of 2 hours per week

Introduction to Excel and Google Sheets for Data Science

Unit 1: Foundations of Excel and Google Sheets

- Introduction to Data Science with Excel and Google Sheets
- Navigating the interface of Excel and Google Sheets
- Basic operations: Entering, editing, and formatting data
- Cell Formatting, Conditional Formatting
- Understanding and using formulas and functions
- Excel vs. Google Sheets: Key differences and when to use each
- Practical assignment: Basic data entry and manipulation

Data Cleaning and Preparation

Unit 2: Data Cleaning Techniques

- Handling missing values and duplicate data
- Data type conversions
- Text functions for data cleaning in Excel and Google Sheets
- Introduction to regular expressions for advanced text manipulation
- Practical assignment: Cleaning a real-world dataset

Data Analysis Fundamentals

Unit 3: Basic Data Analysis Tools

- Descriptive statistics: SUM, AVERAGE, MEDIAN, MODE, MIN, MAX
- Conditional mathematics: SUMIF, COUNTIF, AVERAGEIF
- Working with an Excel Table
    - Sorting and Filtering
- PivotTables in Excel and Pivot Table equivalents in Google Sheets
- Practical assignment: Analyzing a given dataset

Unit 4: Advanced Data Analysis

- Advanced formulas: VLOOKUP, HLOOKUP, INDEX, MATCH
- Introduction to Array formulas
- Working with dates and times for time series analysis
- Introduction to Query function in Google Sheets
- Practical assignment: Detailed analysis of a given data

Unit 5: Advanced Cell Formatting and Conditional Formatting

- Cell Formatting Techniques
- Custom Number Formats
- Conditional Formatting with Built-In-Rules
- Conditional Formatting with Custom Rules.
- Practical assignment: Detailed analysis of a given data

Data Visualization

Unit 5: Creating Charts and Graphs

- Chart basics in Excel and Google Sheets: Column, Bar, Line, Pie
- Advanced chart types and when to use them
- Creating dynamic and interactive charts
- Best practices in data visualization
- Practical assignment: Visualizing a given data

Unit 6: Working with External Data and Advanced Tools

- Importing data from various sources into Excel and Google Sheets
- Introduction to Power Query in Excel and IMPORT formulas in Google Sheets
- Connecting to databases and other data sources
- Practical assignment: Importing and analyzing external data

Capstone Project

Unit 8: Capstone Project

- Application of skills learned to a comprehensive real-world problem
- Data cleaning, analysis, and visualization
- Presentation of findings in a professional format
- Peer review and feedback

Supplementary Materials

- Comprehensive cheat sheet of formulas, functions, and shortcuts for Excel and Google Sheets
- Click here for recommended resources for further learning and exploration in Data Science

Assessment and Certification

- Continuous assessment through practical assignments and quizzes
- Final assessment through a capstone project presentation