

Data Analytics with Generative AI

A comprehensive, hands-on course designed for aspiring data professionals. Master the tools, techniques, and AI-powered workflows that drive real-world data decisions — from spreadsheets to machine learning-ready Python, and everything in between.

7 MODULES | BEGINNER TO ADVANCED | INDUSTRY-READY SKILLS

Course Overview

What You'll Learn

This course is structured into seven powerful modules, each building on the last. You'll develop a complete analytics skill set — from Excel fundamentals through SQL databases, business intelligence tools, Python programming, statistics, and cutting-edge generative AI workflows.



MODULE 1

Advanced Excel

Excel remains the backbone of data analysis in most organizations. This module takes you from the interface basics all the way through automation with VBA and Macros — building a rock-solid foundation for every module that follows.



Module 1 — Advanced Excel: Topics Covered

1

Foundations

- Excel interface & MS Office versions
- Rows, columns & fill series
- Formatting, clipboard & paste special

2

Formulas & Functions

- Absolute, relative & mixed referencing
- Arithmetic & logical functions (IF, AND, OR, IFERROR)
- Lookup functions (VLOOKUP, INDEX MATCH, OFFSET)
- Date & text functions

3

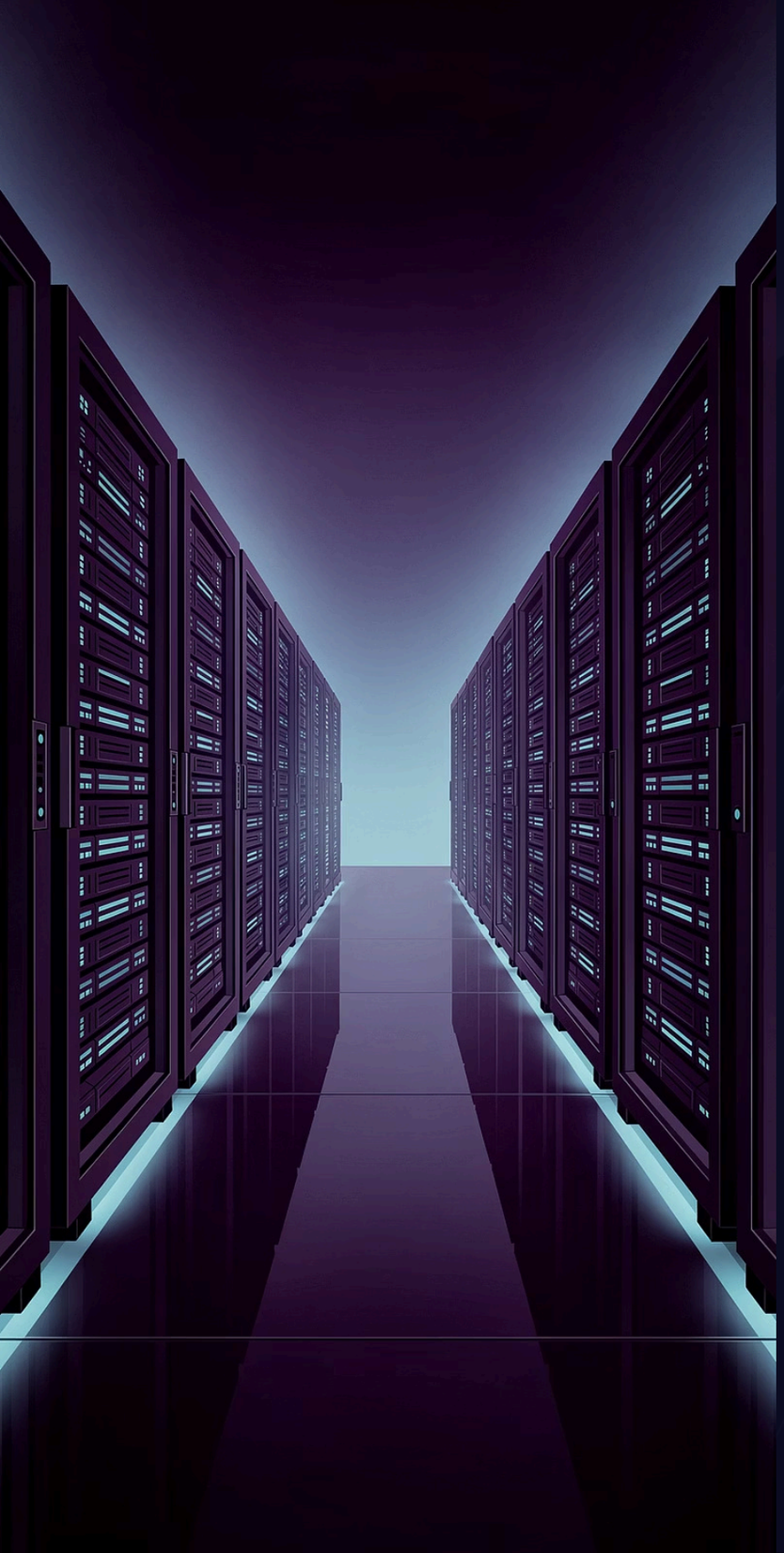
Data Analysis

- Data cleaning & filtering
- Conditional formatting & charts
- Pivot tables & dashboards

4

Power Tools & Automation

- Power Query & Power Pivot
- VBA & Macros for workflow automation



MODULE 2

MySQL Database

Structured Query Language is the universal language of data. This module walks you through relational database design, core SQL commands, and advanced features like stored procedures, window functions, and triggers — giving you the ability to query and manage data at scale.

Module 2 — MySQL: Topics Covered

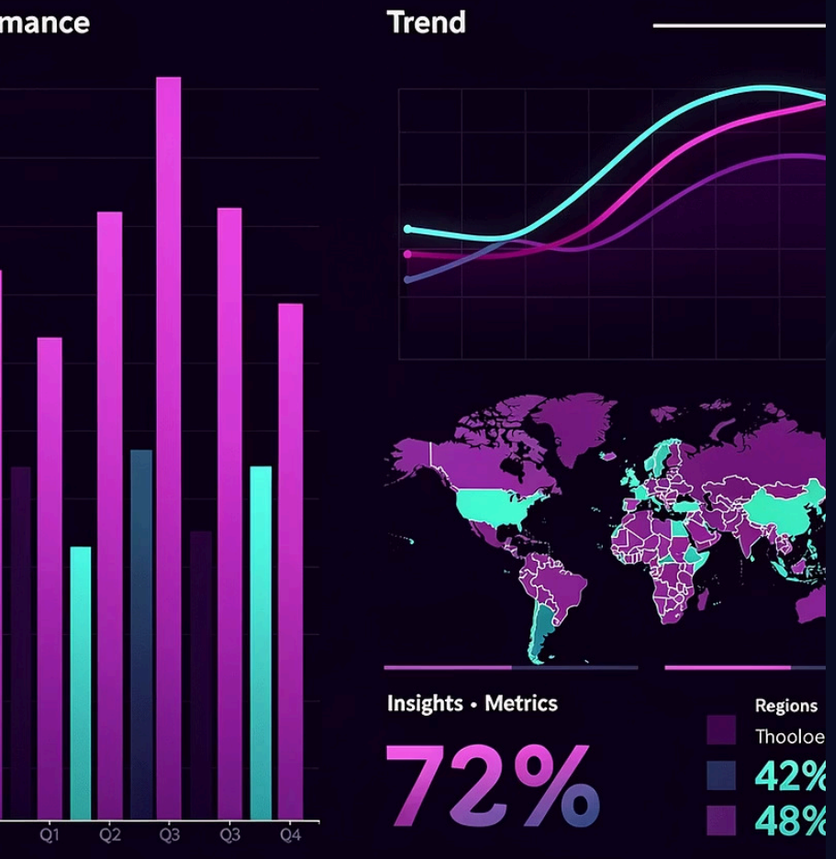
Core Concepts

- Introduction to databases & RDBMS
- MySQL installation & setup
- DDL, DML, DQL & TCL commands
- SELECT, WHERE, ORDER BY
- Aggregate functions
- Constraints & indexes
- Views

Advanced SQL Techniques

- **Joins:** Inner, Left, Right, Cross
- **Stored Procedures** for reusable logic
- **Functions & Window Functions** for analytical queries
- **Union & Subqueries** for complex data retrieval
- **Triggers & Exception Handling** for robust automation

Window functions like RANK(), ROW_NUMBER(), and LEAD/LAG are essential for modern analytics roles and appear frequently in data interviews.

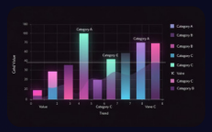


MODULE 3

Tableau

Tableau transforms raw data into compelling, interactive visual stories. In this module, you'll move from basic chart creation through advanced calculations, Level of Detail (LOD) expressions, and fully interactive dashboard design — skills in high demand across analytics teams worldwide.

Module 3 — Tableau: Topics Covered



Visualization Foundations

Introduction to Tableau, core data visualization concepts, basic chart types, and formatting best practices.



Filters & Calculations

Applying filters, building calculated fields, LOD expressions, and powerful table calculations for deeper insight.



Advanced Features

Custom charts, groups, sets, and parameters to give users dynamic control over their data views.



Dashboards & Publishing

Building fully interactive dashboards, configuring dashboard actions, and publishing to Tableau Public for sharing.

MODULE 4

Power BI

Microsoft's Power BI is the most widely adopted business intelligence platform in enterprise settings. This module equips you with the full Power BI workflow — from data ingestion and modeling to DAX-powered measures, custom visuals, and sharing insights through the Power BI Service.



Module 4 — Power BI: Topics Covered

01

Interface & Data Connection

Power BI Desktop overview, Query Editor interface, and connecting to multiple data sources.

02

Visualizations & Maps

Building charts, KPI cards, geo maps, and custom visuals to communicate data clearly and effectively.

03

Data Modeling & DAX

Power Query transformations, defining relationships between tables, and writing DAX expressions for calculated columns and measures.

04

Advanced Reporting

Bookmarks, drill-through pages, and custom visual integration for professional-grade reports.

05

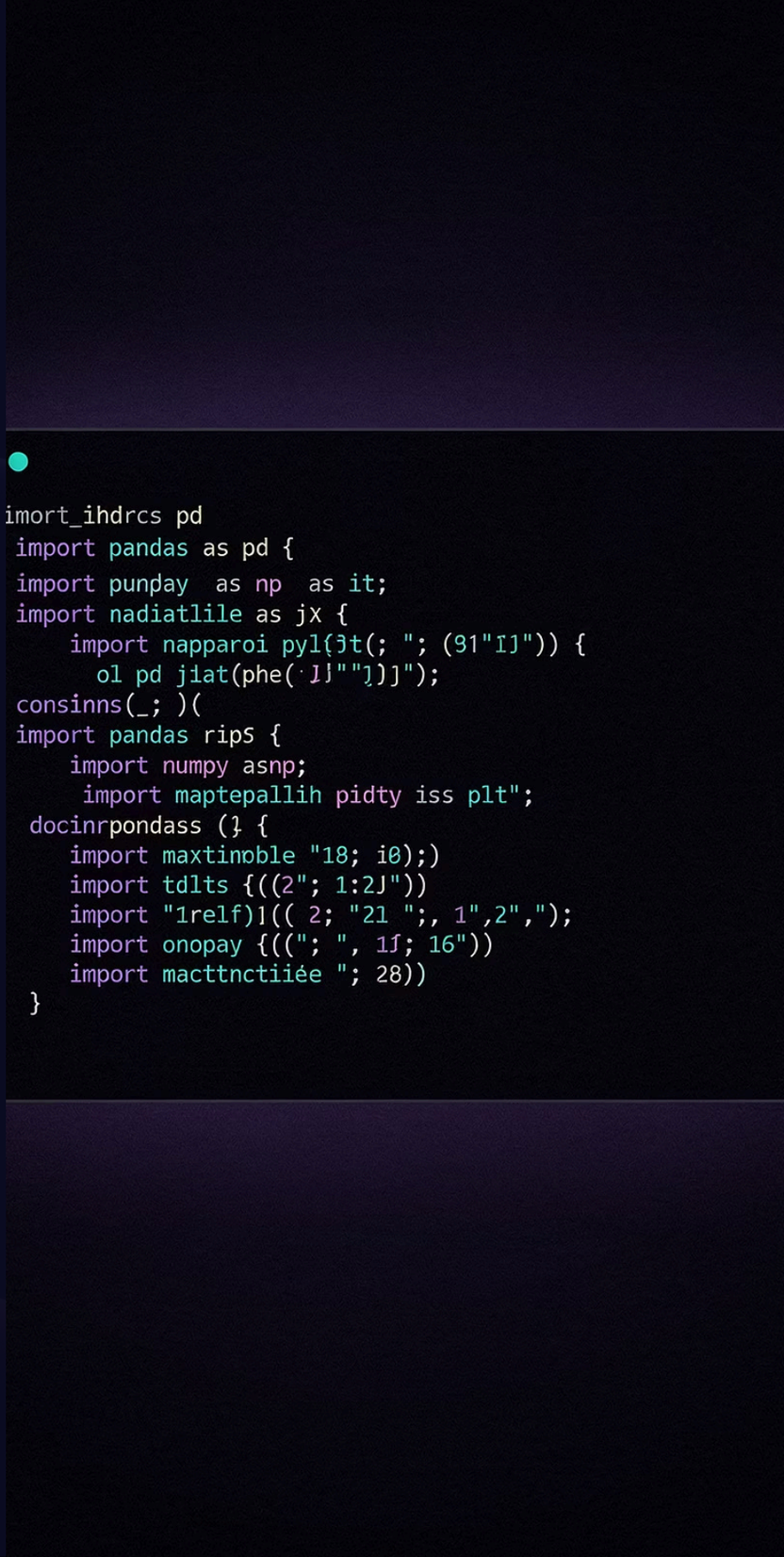
Power BI Service & Sharing

Publishing to the cloud, scheduling data refresh, and exporting reports — including to PowerPoint format.

MODULE 5

Python Programming

Python is the lingua franca of data science and analytics. This module builds your Python proficiency from the ground up — starting with core programming concepts and culminating in real-world data analysis and visualization using industry-standard libraries like Pandas, NumPy, Matplotlib, and Seaborn.



Module 5 — Python: Topics Covered

Programming Fundamentals

- **Python Basics** — syntax, environment setup, and Jupyter Notebooks
- **Variables & Data Types** — integers, floats, strings, booleans
- **Data Structures** — lists, tuples, and dictionaries
- **Loops & Conditions** — for/while loops, if/elif/else logic
- **Functions & Lambda** — reusable logic and concise expressions
- **Regex** — pattern matching for text data cleaning

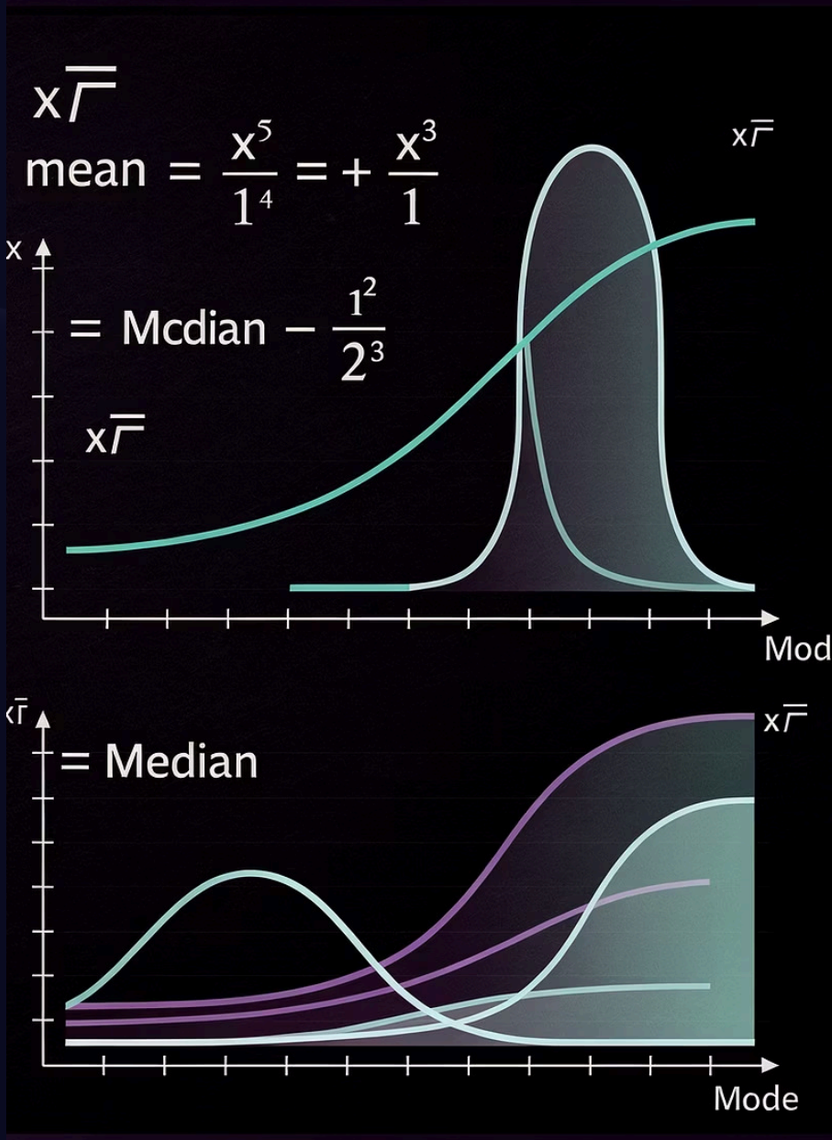
Data Analysis Libraries

- **Pandas** — DataFrames, data wrangling, groupby, merges
- **NumPy** — arrays, numerical computing, statistical operations
- **Matplotlib** — foundational plotting and chart customization
- **Seaborn** — statistical visualizations and beautiful defaults
- **Data Analysis & Visualization Projects** — end-to-end analysis workflows using real datasets

MODULE 6

Business Statistics

Every great data analyst understands the statistical concepts that underpin their work. This module introduces the core of descriptive statistics — the foundation for interpreting data distributions, summarizing datasets, and communicating findings with confidence and precision.



Module 6 — Business Statistics: Topics Covered

Descriptive Statistics

Descriptive statistics give us the tools to summarize and understand any dataset before diving into deeper analysis. You'll learn how to describe data distributions numerically and visually.

Mean

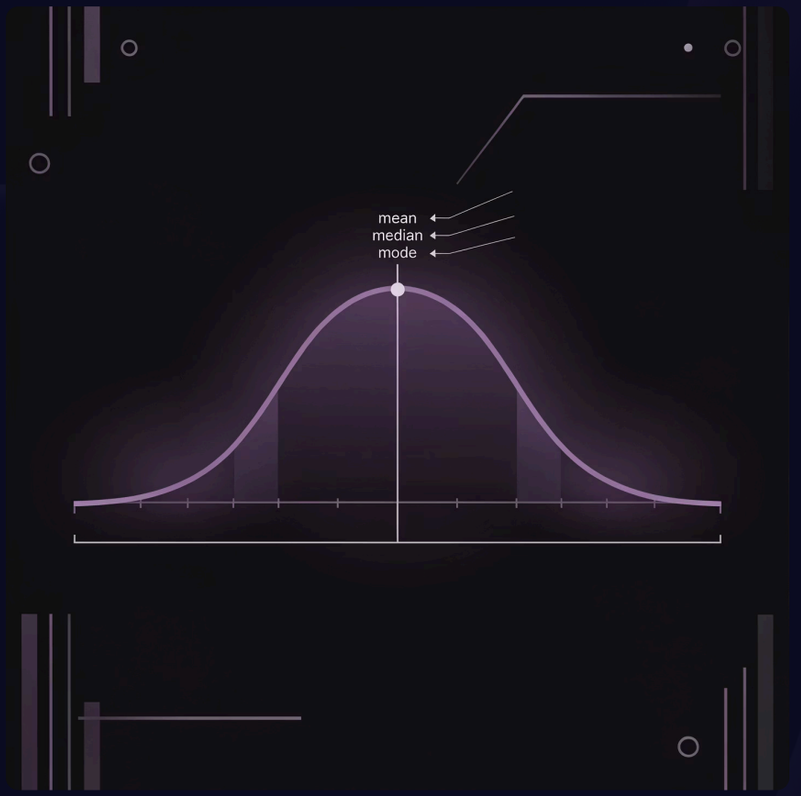
The arithmetic average — the sum of values divided by the count. Sensitive to outliers.

Median

The middle value when data is ordered. Robust to extreme values and skewed distributions.

Mode

The most frequently occurring value. Especially useful for categorical data analysis.



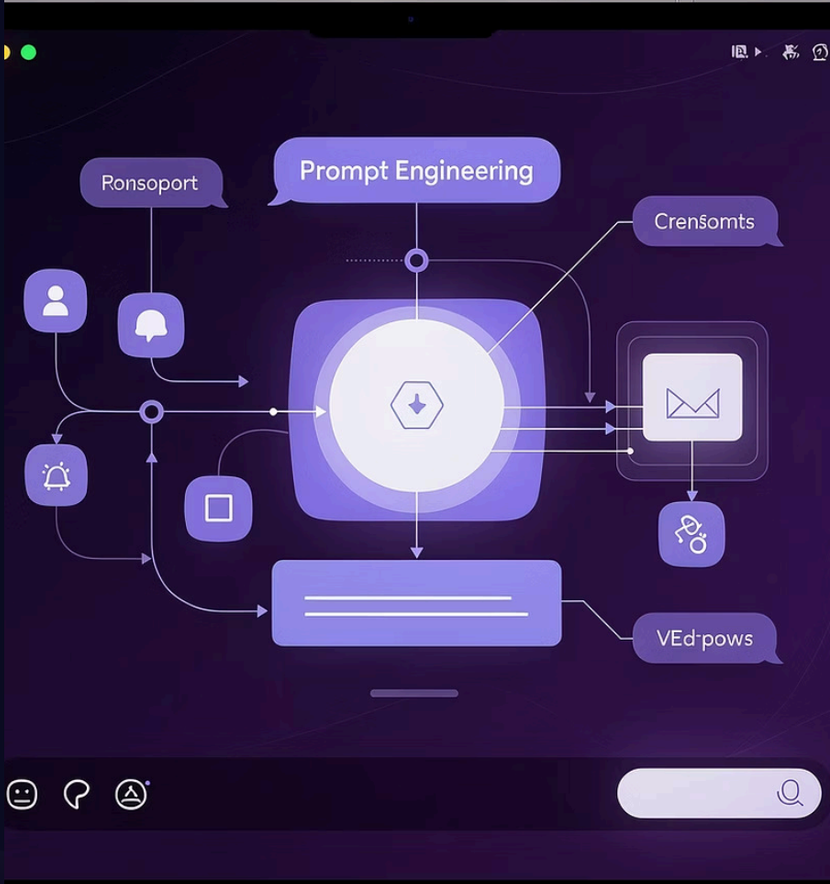
Understanding when to use mean vs. median is a critical skill in real-world data analysis — skewed distributions can be very misleading when only averages are reported.



MODULE 7

ChatGPT & AI Tools

Generative AI is transforming the way data professionals work. This module teaches you to harness ChatGPT and modern AI tools — from writing better prompts to automating research, creating content, and integrating AI ethically into your analytics workflows.



Module 7 — ChatGPT & AI Tools: Topics Covered



Introduction & Applications

What ChatGPT is, how large language models work at a high level, and real-world use cases across industries — from data summarization to code generation.



Prompt Engineering

The art and science of crafting effective prompts. Learn to give clear context, constraints, and examples to get consistently high-quality outputs from AI models.



Practical AI Workflows

Use ChatGPT to create content, write and improve resumes and cover letters, accelerate research, and brainstorm analytical frameworks and solutions.



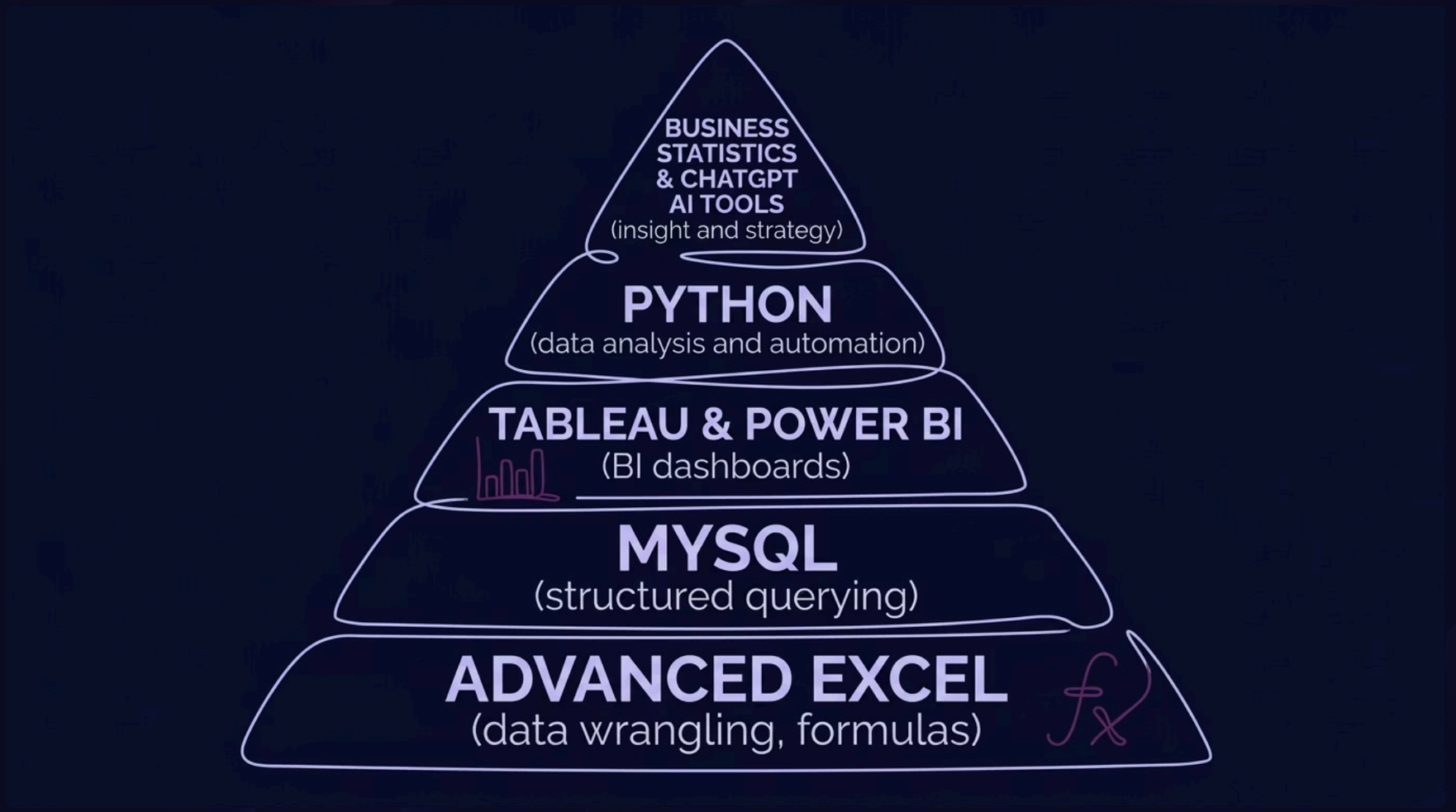
Best Practices & Ethics

Responsible AI use — understanding limitations, avoiding hallucinations, respecting data privacy, and applying AI tools ethically in professional settings.

Your Learning Journey

The Complete Data Analytics Skill Stack

Each module in this course builds purposefully on the last — from data manipulation foundations through professional BI tools, programming, statistical thinking, and AI augmentation. Together, they form the complete toolkit of a modern, job-ready data analyst.



Ready to Begin?

This course is your launchpad into one of the fastest-growing, most in-demand careers of the decade. Whether you're starting from scratch or leveling up, every lesson is designed to give you practical, portfolio-ready skills that employers are actively hiring for.

🎯 Practical Skills

Hands-on projects and real datasets throughout every module

📊 Industry Tools

Excel, SQL, Tableau, Power BI, Python — the exact tools used on the job

🤖 AI-Ready

Finish with cutting-edge prompt engineering and generative AI skills

