Data24Zone Academy

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CAREER PROGRAM · SYLLABUS · DATA & AI FLAGSHIP

Data Science 360: Analytics, ML & AI

One structured path across the full data science pipeline — Python, SQL, dashboards, machine learning, deep learning, and generative/agentic AI — for learners who want the complete picture.

DURATION	COMMITMENT	LEVEL	FORMATS
20 Weeks	10–12 hrs/week	Complete Track (Beginner to Advanced)	Online Live · Offline (Coimbatore) · Self-Paced

Tools & tech stack

Python · SQL · Power BI · Machine Learning · Deep Learning · GenAI & Agents · Tableau · scikit-learn · PyTorch · Hugging Face · LangChain · Claude / ChatGPT

Who it's for

- Learners who want one structured path spanning data analysis, machine learning, and generative/agentic AI

What you'll learn

- Python, SQL, and dashboarding across a real analytics workflow
- Supervised and unsupervised machine learning fundamentals
- Deep learning, NLP, and computer vision basics
- Generative AI, RAG, agentic AI, and LLM fine-tuning fundamentals

Curriculum

01 Part 1: Data Science Foundations and Statistics

- Introduction to Data Science
- Data Collection, Sampling, and Quality
- Descriptive Statistics and Probability
- Statistical Inference and Experimentation
- Relationships, Regression, and Causal Thinking

02 Part 2: Mathematics for Data Science

- Algebra, Functions, and Logarithms
- Linear Algebra
- Calculus and Optimisation

03 Part 3: Python Programming for Data Science

- Environment Setup and Fundamentals
- Data Structures and Control Flow
- Functions, Object Orientation, and Errors
- Files, APIs, Testing, and Version Control

04 Part 4: Data Analysis and Visualisation with Python

- NumPy for Numerical Computing
- Pandas Fundamentals
- Data Cleaning and Feature Preparation
- Exploratory Data Analysis and Visualisation

05 Part 5: SQL, Databases, and Data Access

- Relational Database Fundamentals
- Querying, Aggregation, and Joins
- Advanced Analytical SQL
- NoSQL and Python Database Integration

06 Part 6: Business Intelligence and Data Communication

- Excel for Data Science
- Power BI Data Preparation and Modelling
- DAX, Visualisation, and Storytelling

07 Part 7: Machine Learning Foundations

- Machine Learning Workflow
- Regression
- Classification
- Validation, Tuning, and Explainability

08 Part 8: Advanced Machine Learning and Specialised Analysis

- Feature Engineering and Selection
- Clustering and Customer Segmentation
- Recommendation and Anomaly Detection
- Time Series Forecasting
- Survival and Causal Applications

09 Part 9: Deep Learning

- Neural Network Foundations
- Framework Workflow and Model Improvement
- Modern Architectures

10 Part 10: Natural Language Processing and Generative AI

- Text Processing and Classical NLP
- Embeddings, Transformers, and LLMs
- Prompt Engineering and Structured Generation
- Retrieval Augmented Generation
- Responsible Generative AI

11 Part 11: Computer Vision

- Image Fundamentals and Classical Vision
- Image Classification and Transfer Learning
- Detection, Segmentation, and Deployment

12 Part 12: Data Engineering, Big Data, and Cloud

- Data Architecture and Pipelines
- Distributed Processing with Spark
- Orchestration, Containers, and Cloud

13 Part 13: Deployment, MLOps, and Responsible AI

- Model Packaging and API Deployment
- Application Delivery
- MLOps Lifecycle
- Monitoring, Governance, and Responsible AI

14 Part 14: Projects, Portfolio, and Career Preparation

- Learning Area Mini Projects
- Final Integrated Capstone Project
- Portfolio Standards and Career Preparation

15 AI Pro

- Using Claude, ChatGPT, and Perplexity across the full data science workflow
- Verifying AI-assisted analysis and models before trusting them
- Capstone project: an end-to-end analysis combining data analysis, ML, and generative AI

Projects

- An end-to-end e-commerce or business dataset analysis, from cleaning to dashboard
- A supervised learning project comparing multiple models on the same evaluation metric
- A generative AI application (chatbot or RAG system) grounded in real data
- A capstone combining data analysis, a trained model, and an AI-powered feature