

12-Month Data Science Course Outline

Official Course Roadmap

 **Website:** Ts-Developers.com

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◆ **Module 1: Programming & Data Basics (Months 1-2)**

- Introduction to Data Science & Career Scope
- Python Programming (Basic → Intermediate)
- Data Types, Loops, Functions
- Problem Solving & Logic Building
- Mini Projects: Data-based Python Tasks

◆ **Module 2: Data Handling & Analysis (Month 3)**

- NumPy (Arrays & Mathematical Operations)
- Pandas (DataFrames & Data Handling)
- Data Cleaning & Preprocessing
- Handling Missing & Noisy Data
- Practical: Real-world Dataset Cleaning

◆ **Module 3: Data Visualization (Month 4)**

- Matplotlib & Seaborn
- Data Visualization Techniques
- Graphs, Charts & Dashboards
- Storytelling with Data
- Project: Data Visualization Dashboard

◆ **Module 4: Statistics for Data Science (Month 5)**

- Descriptive Statistics
 - Probability Concepts
 - Hypothesis Testing
 - Data Distributions
 - Practical: Statistical Analysis on Datasets
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◆ **Module 5: Machine Learning (Months 6–7)**

- Supervised Learning (Regression, Classification)
 - Unsupervised Learning (Clustering)
 - Model Training & Evaluation
 - Feature Engineering
 - Project: Prediction Models (Real-world use cases)
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◆ **Module 6: Advanced Machine Learning (Month 8)**

- Ensemble Methods (Random Forest, Boosting)
 - Model Optimization Techniques
 - Cross Validation
 - Handling Overfitting & Underfitting
 - Practical: Improve Model Accuracy
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◆ **Module 7: Big Data & Tools (Month 9)**

- Introduction to Big Data
 - SQL for Data Analysis
 - Data Warehousing Basics
 - Tools Overview (Excel, Power BI Basics)
 - Practical: Data Querying & Reporting
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◆ **Module 8: Data Science Projects (Month 10)**

- Real-world Datasets (Business, Health, Finance)
 - Data Analysis Projects
 - End-to-End Data Pipeline
 - Problem Solving with Data
 - Project: Complete Data Analysis Case Study
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◆ **Module 9: Deployment & Automation (Month 11)**

- Model Deployment Basics
 - APIs for Data Models
 - Dashboard Deployment
 - Automation using Python
 - Practical: Deploy Data Projects
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◆ **Module 10: Final Project & Career Development (Month 12)**

- Final Capstone Project (Industry-Level Data Science Solution)
- End-to-End Project Development (Data Collection → Analysis → Model → Deployment)
- Advanced Project Documentation (Reports & Case Study Writing)
- Team-Based Project Collaboration
- Presentation Skills & Project Demo
- Portfolio Development (GitHub + Live Projects)
- Internship / Practical Training Opportunity
- Final Evaluation & Certification

