

Data Science Internship Curriculum (3 Months + Mini Project)

Month 1: Python & Data Foundations

Week 1: Introduction to Data Science

- What is Data Science
- Data Science Lifecycle
- Applications of Data Science
- Python Basics for Data Science

Week 2: Python Libraries for Data Analysis

- NumPy (Arrays, Operations)
- Pandas (Series, DataFrames)
- Data Cleaning & Preprocessing
- Handling Missing Values

Week 3: Data Visualization

- Matplotlib Basics
- Seaborn Basics
- Charts (Bar, Line, Histogram, Box Plot)
- Data Interpretation

Week 4: Statistics for Data Science

- Mean, Median, Mode
- Variance & Standard Deviation
- Probability Basics
- Correlation & Covariance

Month 2: Machine Learning for Data Science

Week 5: Exploratory Data Analysis (EDA)

- Understanding Dataset
- Feature Engineering

- Outlier Detection
- Data Scaling & Normalization

Week 6: Supervised Machine Learning

- Linear Regression
- Logistic Regression
- KNN
- Decision Trees

Week 7: Unsupervised Machine Learning

- K-Means Clustering
- Hierarchical Clustering
- Principal Component Analysis (PCA)

Week 8: Model Evaluation

- Train-Test Split
- Cross Validation
- Accuracy, Precision, Recall, F1-score
- Overfitting & Underfitting

Month 3: Advanced Concepts & Mini Project

Week 9: SQL for Data Science

- SQL Basics
- Joins & Subqueries
- Data Extraction

Week 10: Real-Time Data Science Tools

- Jupyter Notebook
- Git & GitHub
- Intro to Power BI / Tableau
- Basic Deployment Concepts

Week 11–12: Mini Project

- Problem Statement Selection
- Dataset Collection
- Data Cleaning & EDA
- Model Building & Evaluation
- Final Presentation & Documentation

Mini Project Ideas

- Sales Data Analysis
- Customer Churn Prediction
- Movie Recommendation System
- Credit Card Fraud Detection
- Stock Price Analysis

Internship Outcomes

- Strong Data Science Fundamentals
- Hands-on Project Experience
- Real-world Dataset Handling
- GitHub Portfolio
- Internship Certificate & Interview Support