

Introduction to Data Science

Data Science is an interdisciplinary field that uses scientific methods, processes, algorithms, and systems to extract knowledge and insights from structured and unstructured data. It combines fields such as statistics, computer science, and domain expertise to solve complex problems.

Key Concepts:

- Data Collection
- Data Cleaning
- Exploratory Data Analysis
- Machine Learning
- Data Visualization

Basics of Python Programming

Python is a high-level, interpreted programming language known for its simplicity and readability.

It is widely used in web development, data analysis, AI, scientific computing, and more.

Fundamental Concepts:

- Variables and Data Types
- Control Flow (if, for, while)
- Functions and Modules
- Lists, Tuples, Dictionaries
- File Handling

Machine Learning Overview

Machine Learning (ML) is a subset of AI that enables systems to learn and improve from experience

without being explicitly programmed. ML algorithms build models based on sample data.

Types of Machine Learning:

- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning

Popular Algorithms:

- Linear Regression
- Decision Trees
- K-Means Clustering
- Neural Networks