**Data Science with Python**

**Month 1: Foundations of Data Science with Python**

Week 1: Introduction to Data Science

* Overview of data science and its applications
* Introduction to key concepts: data, information, knowledge
* Python for data science: installation and setup, Jupyter Notebooks

Week 2-3: Python Programming for Data Science

* Variables, data types, and operators
* Control structures (if statements, loops)
* Functions and modules
* Numpy and Pandas libraries for data manipulation

Week 4-5: Data Visualization with Matplotlib and Seaborn

* Basic plotting with Matplotlib
* Advanced plotting and customization
* Data visualization with Seaborn

Week 6: Exploratory Data Analysis (EDA)

* Descriptive statistics
* Handling missing data
* Outlier detection and removal

**Month 2: Machine Learning with Python**

Week 1-2: Introduction to Machine Learning

* Overview of machine learning and its types
* Supervised vs. unsupervised learning
* Scikit-learn library for machine learning in Python

Week 3-4: Supervised Learning

* Regression analysis
* Classification algorithms (e.g., decision trees, support vector machines)
* Model evaluation and performance metrics

Week 5: Unsupervised Learning

* Clustering algorithms (e.g., K-means, hierarchical clustering)
* Dimensionality reduction techniques

Week 6: Final Project and Deployment

* Guided work on a data science project
* Deployment considerations for data science applications