**Week 1: Introduction to Python**

* Overview of Python and its importance in data science
* Installation and setup of Python environment (Anaconda)
* Basic Python syntax and data types
* Control flow statements (if, elif, else, loops)
* Functions and modules

**Week 2: Data Handling with Python**

* Introduction to NumPy for numerical computing
* Introduction to Pandas for data manipulation and analysis
* Loading and handling different types of data (CSV, Excel, JSON, etc.)
* Data cleaning and preprocessing techniques

**Week 3: Data Visualization**

* Introduction to Matplotlib and Seaborn for data visualization
* Plotting basic graphs (line plots, scatter plots, bar plots)
* Customizing plots and adding annotations
* Exploratory data analysis (EDA) techniques

**Week 4: Statistical Analysis with Python**

* Descriptive statistics using Pandas
* Probability distributions and random sampling
* Hypothesis testing and statistical inference
* Correlation and regression analysis

**Week 5: Machine Learning Basics**

* Introduction to scikit-learn for machine learning in Python
* Supervised learning: Regression and classification
* Unsupervised learning: Clustering and dimensionality reduction
* Model evaluation and validation techniques

**Week 6: Advanced Topics in Machine Learning**

* Ensemble methods (Random Forests, Gradient Boosting)
* Support Vector Machines (SVM)
* Neural networks and deep learning with TensorFlow or PyTorch

**Week 7: Big Data Processing**

* Introduction to Apache Spark for big data processing
* Working with RDDs and DataFrames in Spark
* Distributed computing with Spark

**Week 8: Capstone Project**

* Apply all the concepts learned throughout the course to a real-world data science project
* Data collection, preprocessing, analysis, modeling, and visualization
* Presentation of findings and conclusions