# Master Program in Data Science

## Month 1: Introduction to Data Science and Python

Week 1-2: Introduction to Data Science

- Overview of data science and its applications
- Role of a data scientist
- Ethical considerations in data science

Week 3-4: Programming with Python for Data Science

- Introduction to Python programming
- Data structures and libraries (NumPy, Pandas)
- Basic data manipulation and analysis

## Month 2: Data Exploration and Visualization

Week 1-2: Exploratory Data Analysis (EDA)

- Descriptive statistics
- Data cleaning and preprocessing
- Handling missing data

Week 3-4: Data Visualization with Matplotlib and Seaborn

- Introduction to data visualization
- Creating various types of plots and charts
- Storytelling with data

## Month 3: Machine Learning

Week 1-2: Introduction to Machine Learning

- Basics of machine learning
- Types of machine learning algorithms
- Model evaluation and selection

Week 3-4: Supervised Learning Algorithms

- Linear Regression
- Decision Trees and Random Forest
- Support Vector Machines (SVM)

## Month 4: Advanced Topics, Capstone Project, and Final Review

Week 1-2: Unsupervised Learning Algorithms

- Clustering techniques (K-Means, Hierarchical)
- Dimensionality reduction (PCA)

Week 3-4: Advanced Topics and Capstone Project

- Natural Language Processing (NLP)
- Time Series Analysis
- Participants work on a comprehensive data science project

Week 5-6: Final Review and Exam Preparation

- Review of key concepts and techniques
- Practice exams and quizzes
- Final project presentation and evaluation