Month 1: Introduction to Data Science
- Understanding the data science process and its applications
- Basics of Python programming for data science
- Introduction to data analysis libraries (NumPy, Pandas)
- Exploratory data analysis (EDA) techniques

Month 2: Data Visualization and Presentation
- Data visualization principles and best practices
- Using libraries like Matplotlib and Seaborn for data visualization
- Creating interactive visualizations with libraries like Plotly
- Storytelling with data and effective presentation techniques

Month 3: Statistical Analysis and Probability
- Review of basic statistics concepts
- Descriptive and inferential statistics
- Probability distributions and hypothesis testing
- A/B testing and p-values

Month 4: Machine Learning Fundamentals
- Introduction to supervised, unsupervised, and reinforcement learning
- Linear regression and regularization techniques
- Classification algorithms (e.g., logistic regression, decision trees, SVM)
- Clustering algorithms (e.g., k-means, hierarchical clustering)

Month 5: Advanced Machine Learning
- Ensemble methods (e.g., random forests, gradient boosting)
- Dimensionality reduction techniques (e.g., PCA)
- Time series analysis and forecasting
- Introduction to neural networks and deep learning

Month 6: Data Wrangling and Big Data
- Data preprocessing and cleaning techniques
- Working with messy and unstructured data
- Introduction to SQL for data manipulation
- Basics of working with big data using tools like Hadoop and Spark

Month 7: Natural Language Processing (NLP)

- Introduction to NLP and its applications
- Text preprocessing and tokenization
- Sentiment analysis and text classification
- Named entity recognition and language generation

Month 8: Capstone Project and Practical Applications
- Work on a real-world data science project from start to finish
- Apply machine learning and data analysis techniques learned throughout the program
- Present findings and insights from the project

Throughout the program:
- Hands-on coding exercises and projects
- Weekly or bi-weekly quizzes to reinforce concepts
- Guest lectures from industry experts
- Peer reviews and collaboration on projects
- Encourage participants to work on personal projects and explore specific areas of interest within data science