Module	Description	Topics covered and notes
Module 0	This module covers the introduction and overview of the course.	Overview
Python 1-day course	Programming for data science	This is an introductory Python course the is designed for students with no strong programming background
Module 1 - Part 1	Math and statistics for data science	Linear algebra Calculus Statistics Probability
Module 1 - Part 2	Programming for data science	Python Fundamentals Python Scientific Libraries Advanced Python Programming Software Engineering Best Practices Version Control with Git & GitHub Deploying Python Applications to the Web
Module 2 - Part 1	Databases and SQL	Introduction to databases The relational database paradigm Basic SQL Advanced SQL SQL in Python NoSQL Databases
Module 2- Part 2	Application Programming Interfaces (APIs)	Overview Interfaces, Protocols, Authentication API documentation and Python Libraries Extracting data using APIs
Module 3 - Part 1	Exploratory Data Analysis (EDA)	Basic Data Profiling Assessing Data Quality Data Rejection and Imputation Exploring continuous data Visualising Continuous Data Exploring categorical data Visualising Categorical Data Geographic Data Temporal Data
Module 3 - Part 2	Data Science Practices	The Data Science Process Defining the problem Design of Experiments Establishing Causal Relationships Randomised Trials A/B Testing Experimental Design for Big Data

Module 4	Machine Learning - Supervised Learning - Regression	Introduction to Machine Learning Supervised Machine Learning Regression Classification The Predictive Modelling Process Feature Selection Measuring the Accuracy of Regression Models Overfitting
Module 5	Machine Learning - Supervised Learning - Classification	Introduction to Classification Logistic Regression Evaluating Classification Results Neural Networks Support Vector Machines Bayesian Inference Applications
Module 6	Machine Learning - Unsupervised Learning	Clustering and Classification K-Means K-Nearest Neighbours DBSCAN Hierarchical Clustering
Module 7	Decision Trees	Overview Decision Trees Advantages and Disadvantages Decision trees in Scikit Learn Setting hyperparameters
Module 8	Ensemble methods	Introduction Bagging Boosting Stacking Random Forest XGBoost
Module 9	Natural Language Processing (NLP)	Overview Regular Expressions Web Scraping Working with Text Sentiment Analysis Text Classification
Module 10 - Part 1	Deep Learning	Neural Networks and Deep Learning – overview Deep Learning– Basics Demo and lab

Module 10 - Part 2	Artificial Intelligence (AI)	What is Artificial Intelligence (“AI”)? What are the different types of AI? History of AI Reinforcement Learning Multi Agent Systems
Module X	Succeeding as a Data Scientist in the Industry	Introduction, definitions, purpose and objectives What do employers value and what do they complain about? Skills required and attitude to succeed in the industry Data Science process Case study Summary, conclusions and call for actions