# PYTHON FOR DATA SCIENCE

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| Sr. No | Topics | Weeks |
|---|---|---|
| 1 | Data Science Overview | |
| | Data Science | |
| | Data Scientists | Week 1 |
| | Examples of Data Science | |
| | Python for Data Science | |
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| 2 | Data Analytics Overview | |
| | Introduction to Data Visualization | |
| | Processes in Data Science | |
| | Data Wrangling, Data Exploration, and Model Selection | Week 1 & |
| | Exploratory Data Analysis or EDA | Week 2 |
| | Data Visualization | |
| | Plotting | |
| | Hypothesis Building and Testing | |
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| 3 | Statistical Analysis and Business Application | |
| | Introduction to Statistics | |
| | Statistical and Non-Statistical Analysis | Week 3 |
| | Some Common Terms Used in Statistics | |
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| 4 | Data Distrubutions : Central Tendency, Percentiles, Dispersion | |
| | Histogram | |
| | Bell Curve | |
| | Hypothesis Testing | Week 3 |
| | Chi-Square Test | |
| | Correlation Matrix | |
| | Inferential Statistics | |
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| 5 | Python: Enviromental Setup | |
| | Introduction to Anaconda | |
| | Installation of Anaconda Python Distribution - For Windows, Mac OS, | |
| | Jupyter Notebook Installation | |
| | Jupyter Notebook Introduction | |
| | Basic Data Types: Integer, Float, String, None, and Boolean; Typecasti | |
| | Creating, accessing, and slicing tuples | Week 4 |
| | Creating, accessing, and slicing lists | |
| | Creating, viewing, accessing, and modifying dicts | |
| | Creating and using operations on sets | |
| | Basic Operators: 'in', '+', '*' | |
| | Functions | |

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|---|---|---|
| | Control Flow | |
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| 6 | Mathmatical Computing With Numpy | |
| | NumPy Overview | |
| | Properties, Purpose, and Types of ndarray | |
| | Class and Attributes of ndarray Object | |
| | Basic Operations: Concept and Examples | Week 4 & Week 5 |
| | Accessing Array Elements: Indexing, Slicing, Iteration, Indexing with Boolean Arrays | |
| | Copy and Views | |
| | Shape Manipulation | |
| | Broadcasting | |
| | Linear Algebra | |
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| 7 | Data Manipulation With Pandas | |
| | Introduction to Pandas | |
| | Data Structures | |
| | Series | |
| | DataFrame | |
| | Missing Values | Week 6 |
| | Data Operations | |
| | Data Standardization | |
| | Pandas File Read and Write Support | |
| | SQL Operation | |
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| 8 | Machine Learning With Python | |
| | Introduction to Machine Learning | |
| | Machine Learning Approach | Week 7 |
| | How Supervised and Unsupervised Learning Models Work | |
| | Scikit-Learn | |
| | Supervised Learning Models - Linear Regression | Week 8 |
| | Supervised Learning Models: Logistic Regression | Week 9 |
| | K Nearest Neighbors (K-NN) Model | Week 10 |
| | Unsupervised Learning Models: Clustering | Week 11 |
| | Unsupervised Learning Models: Dimensionality Reduction | Week 12 |
| | Decision Tree and Random forest | Week 13 |
| | SVM Classifier | |
| | Pipeline | |
| | Model Persistence | Week 14 |
| | Model Evaluation - Metric Functions | |
| | Feature engineering | |
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| 9 | Data Visulization in Python using Matplotlib | |
| | Introduction to Data Visualization | |
| | Python Libraries | |
| | Plots | |
| | Matplotlib Features: | |

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| | Line Properties Plot with (x, y) | Week 15 |
| | Controlling Line Patterns and Colors | |
| | Set Axis, Labels, and Legend Properties | |
| | Alpha and Annotation | |
| | Multiple Plots | |
| | Subplots | |
| | Types of Plots and Seaborn | |
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| 10 | NLP | Week 16 |
| | Introduction to NLP | |
| | TF-IDF | |
| | Topic Modelling Using LDA | |
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| 11 | Interview Questions | Week 17 |