COMPLETE

DATA SCIENTIST

ROADMAP

Fundamentals to Projects

Why Choose Data Science Field?

👉 Tech industries are increasingly rely on data-driven decision-making

👉 Data science has become a crucial discipline for organisations across all industries.

👉 Building a career in data science can be challenging

👉 Here is a well-defined roadmap that can help you navigate this landscape and build a successful career in data science.

12 weeks

#1 Fundamentals

Master the fundamentals of statistics, mathematics, and programming.

- [x] **Tableau and Excel:** Visual Analytics, Operations on data and calculations in Tableau, Pivot tables, Charts and Statistical functions
- [ ] **SQL:** Databases, Functions, filtering and subqueries, Joins, Group by and Aggregation, Indexes and Partitioning
- [ ] **Python Basics:** Flowcharts, Data types, Operators, Conditional statements and loops, Functions, Strings, Lists, Tuples, Dictionaries
- [ ] Matrix Algebra and Number Systems

8 weeks

#2 Data analysis and visualisation

Master how to analyse, interpret, and present data.

- ☑ **Python libraries:** Numpy, Pandas, Matplotlib, Seaborn, Data Acquisition, Web API and Beautifulsoup, Tweepy
- ☐ **Probability and Applied Statistics:** Bayes Theorem, Distributions, Descriptive Statistics, Outlier treatment, Central limit theorem, Hypothesis testing, ANOVA, EDA, Feature Engineering, Experiment Design, Regex, NLTK, OpenCV

8 weeks

#3 Foundations of Machine Learning and Deep Learning

Master supervised learning, unsupervised learning, and deep learning, as well as the tools and frameworks used to implement these techniques.

- [x] **Advanced Python:** Time and Space Complexities, OOPS Concepts, Functional Programming, Exception Handling
- [ ] **Maths for Machine Learning:** Classification, Hyperplanes, Halfspaces, Calculus, Optimization, Gradient Descent and Principal Component Analysis
- [ ] **Neural Networks and Machine Learning:** Linear Regression, Polynomial, Bias-Variance, Regularisation, Cross Validation, Logistic Regression, Perceptron and Softmax Classification, K Means Clustering, Hierarchical Clustering

8 weeks

#4 Advanced Machine Learning and Deep Learning

Master Natural language processing and convolutional neural networks.

- ☑ **Supervised Learning:** MLE, MAP, Classification metrics, Imbalance Data, Decision Trees, Bagging, Naive Bayes Classifier, SVM
- ☐ **Machine Learning:** Clustering, GMM, Anomaly/Outlier Detection, PCA, t-SNE, Recommender Systems, Time Series Analysis
- ☐ **Deep Learning- Neural Networks:** Perceptrons, Hidden Layers, Tensorflow, Keras, Forward and Back Propagation, Multilayer Perceptrons, Callbacks, Tensorboard, Hyperparameter Tuning, LSTM, BERT

2 weeks

#5 PROJECTS

Build projects to document and display your learning process:

- [x] Use real world datasets and try to solve real world problems
- [ ] Make use of different algorithms and techniques
- [ ] Present your findings in a clear way
- [ ] Show willingness to learn from challenges be it collecting data or finding proper parameters to solve problems
- [ ] Make unique projects such as web apps, dashboards to stand out

2 weeks

#6 Resume Building and Mock Interviews

- [x] Create a stellar resume with your skills and projects
- [ ] Learn in public by showing your progress and work
- [ ] Take mock interviews to understand your weak points
- [ ] Look into company specific questions and requirements