Learning Schedule

12 Weeks Data Science Career Development Learning Schedule

"Believe you can and you're halfway there." - Theodore Roosevelt

Week 1: Introduction to Data Science and Python Basics

* Topics:

1. Introduction to Data Science: definition, importance, and applications (4 hours)

2. Python basics: variables, data types, loops, conditional statements, functions (8 hours)

* Resources:

- Coursera's Data Science Career Learning Path (https://www.coursera.org/learning-paths/data-science)

- Data Science Tutorials (https://www.datascienceweekly.org/tutorials)

* Practical Exercises:

- Complete Python basics exercises on LeetCode or HackerRank (4 hours)

- Work on a simple Python project, such as a calculator or quizzes (4 hours)

* Assessments:

- Take a Python basics quiz on Coursera or edX (1 hour)

- Review and submit your Python project for feedback (1 hour)

Week 2: Data Preprocessing and Visualization

* Topics:

1. Data preprocessing: cleaning, handling missing values, data transformation (6 hours)

2. Data visualization: introduction to Matplotlib and Seaborn (6 hours)

* Resources:

- Coursera's Data Science Career Learning Path (https://www.coursera.org/learning-paths/data-science)

- Data Science Tutorials (https://www.datascienceweekly.org/tutorials)

* Practical Exercises:

- Work on a data preprocessing project using Pandas (6 hours)

- Create visualizations using Matplotlib and Seaborn (6 hours)

* Assessments:

- Take a data preprocessing quiz on Coursera or edX (1 hour)

- Review and submit your data visualization project for feedback (1 hour)

Week 3: Machine Learning Fundamentals

* Topics:

1. Supervised learning: regression, classification, logistic regression (8 hours)

2. Unsupervised learning: clustering, dimensionality reduction (8 hours)

* Resources:

- Coursera's Machine Learning course by Andrew Ng (https://www.coursera.org/learn/machine-learning)

- KDnuggets (https://www.kdnuggets.com/)

* Practical Exercises:

- Work on a supervised learning project using Scikit-learn (8 hours)

- Implement unsupervised learning algorithms using Scikit-learn (8 hours)

* Assessments:

- Take a machine learning quiz on Coursera or edX (1 hour)

- Review and submit your machine learning project for feedback (1 hour)

Week 4: Deep Learning Fundamentals

* Topics:

1. Introduction to deep learning: neural networks, perceptron, backpropagation (8 hours)

2. Convolutional neural networks (CNNs): image classification, object detection (8 hours)

* Resources:

- Coursera's Deep Learning course by Andrew Ng (https://www.coursera.org/learn/neural-networks-deep-learning)

- Towards Data Science (https://towardsdatascience.com/)

* Practical Exercises:

- Implement a simple neural network using Keras or TensorFlow (8 hours)

- Work on a CNN project using Keras or TensorFlow (8 hours)

* Assessments:

- Take a deep learning quiz on Coursera or edX (1 hour)

- Review and submit your deep learning project for feedback (1 hour)

Week 5: Big Data and NoSQL Databases

* Topics:

1. Introduction to big data: Hadoop, Spark, distributed computing (6 hours)

2. NoSQL databases: MongoDB, Cassandra, data modeling (6 hours)

* Resources:

- Coursera's Big Data course by University of California, San Diego (https://www.coursera.org/learn/big-data)

- Data Science Weekly (https://www.datascienceweekly.org/)

* Practical Exercises:

- Work on a big data project using Hadoop or Spark (6 hours)

- Implement a NoSQL database using MongoDB or Cassandra (6 hours)

* Assessments:

- Take a big data quiz on Coursera or edX (1 hour)

- Review and submit your NoSQL database project for feedback (1 hour)

Week 6-12: Project Development and Capstone Project

* Topics:

1. Project development: choose a project idea, data collection, data preprocessing (12 hours)

2. Capstone project: implementation, testing, and deployment (24 hours)

* Resources:

- Coursera's Data Science Capstone course (https://www.coursera.org/learn/data-science-project)

- GitHub repositories for data science projects (https://github.com/learn-co-curriculum/dsc-capstone-project-v2)

* Practical Exercises:

- Develop and implement a data science project (24 hours)

- Work on a capstone project and submit for feedback (24 hours)

* Assessments:

- Review and submit your project for feedback (2 hours)

- Take a final assessment quiz on Coursera or edX (1 hour)

"It does not matter how slowly you go as long as you do not stop." - Confucius