WAC | What After College

Data Science

Course Curriculum

Data Science

01 Mission

To make data science uncool again and enables individual learners to answer their most challenging questions by making better use of data.

02 Course Description

This comprehensive course will be your guide to learning how to use the power of Python to analyze data, create beautiful visualizations, and use powerful machine learning algorithms and evaluate the algorithms.
This course is designed for both beginners with some programming experience or experienced developers looking to make the jump to Data Science.

03 Prerequisites

- General Requirements

You are enthusiastic and motivated to learn. Participation in this course requires consistently meeting project deadlines and active participation..

- Program-Specific Requirements

You have access to a computer with an internet connection, on which you'll install a professional code/text editor (VSCode).
You can independently solve and describe your solution to a math or programming problem.

- Prior experience in python language.

04 Jobs Which You Can Apply

Data Analyst.

Data Science

03 Projects

1. Titanic: Machine Learning from Disaster
2. Digit Recognize
3. House Prices: Advanced Regression Techniques

04 Skills you will learn

1. Evaluate & compare models
2. Working with Kaggle
3. Data Wrangling on Kaggle competitions
4. Applied ML
5. Learn accuracy metrics
6. Learning most used python packages in Data Science

Estimated Time	Modules	Learning Outcome	Projects and target
Day 1 & 2	**Module 1** Working with NumPy, Pandas and matplotlib	How to read the documentation and understand packages	Learning most used packages in Data Science
Day 3 & 4	**Module 2** Data Wrangling: Data Collection	Collecting data from multiple sources such as CSV, JSON and APIs	How to use Kaggle as a data scientist and work on competitions
Day 5 & 6 Day 7 & 8 Day 9 & 10	**Module 3** Data Wrangling: Data Exploration and Cleaning	Data exploration, cleaning and visualisation. Feature Engineering	Data Wrangling on Kaggle competition 1. Titanic: Machine Learning from Disaster 2. House Prices: Advanced Regression Techniques
Day 11 & 12 Day 13 & 14 Day 15 & 16	**Module 4** Machine learning, SciKitlearn, Hyperparameter Tuning	Intro to Machine Learning, Decision Trees, Random Forests, SVM, Ensembles: Bagging vs Boosting, Clustering for Unsupervised Learning, K-Means on Two-Dimensional Data, K-Means on n-Dimensional Data	Applying machine learning model on the above projects and submitting the solution on Kaggle
Day 17 & 18	**Module 5** Deep Learning	what is a neural network, Implementing with ANN using Keras	working on MNIST dataset and submit the solution on Kaggle https://www.kaggle.com/c/digit-recognizer
Day 19 & 20	**Module 6** Model Evaluation	Precision, Recall, and Confusion Matrix, AUC-ROC Curve	Learn how to evaluate and compare different model and what are different accuracy matrices

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