

DATA SCIENCE & MACHINE LEARNING ESSENTIALS

About The Course

The [DATA SCIENCE & MACHINE LEARNING ESSENTIALS](#) program has been designed to introduce you to the world of analytics and elevate your skills to ultimately become a Data Scientist. As a Data Scientist, you must be able to work with multiple data formats, have knowledge of the algorithms that can help you extract useful data, master data mining, data management and data exploration. If you are pursuing a career in Data Science, this is the program for you.

WHO THIS COURSE IS FOR

- Those who have analytical ability independent of the academic background will be fine
- Ability to “love” data , analyze the data
- Not mandatory but some sort of programming knowledge will be added advantage
- Students who are falling in love with data driven world
- Professionals who wants to switch to Data Science and Machine Learning Technology
- Someone who is interested in playing with data with the flavour of algorithm
- Someone interested in predicting meaningful output from huge volume of data
- Someone interested in learning about Data Science and Machine Learning

REQUIREMENTS

- Be curious about Data and the want to play with data
- Be curious about new technology
- Need to have analytical hunch
- Have the desire to build cool and exciting projects as a way to learn
- Prefer a hands-on approach to learning
- Exposer to coding language will be a plus
- All required knowledge related to Machine Learning /Data Science taught from scratch .
We will take care, nothing to worry
- Willing to play with new coding language and think Machine learning coding like other cool coding language

WHAT YOU'LL LEARN

This is a **hands-on, projects-based approach** to learning the Data Science and Machine Learning catered to **all levels of experience**. In this course, you will build projects and learn essentials such as:

- ✓ Understand what is Probability Theory, Statistical Metrics , Density Function(cdf, pdf etc.),Probability Distribution
- ✓ Machine Learning coding Language fundamentals and build good understanding about the same
- ✓ Types of Machine Learning algorithm and their application in different scenario
- ✓ Data Manipulation for making data algorithm friendly
- ✓ Hypothesis Testing
- ✓ Data Visualization using different libraries
- ✓ Understand how to Pre-process data and Exploratory Data Analysis
- ✓ How to use different libraries for different algorithm
- ✓ End to end implementation of Data Science/Machine Learning Algorithm with all essential intermediate steps
- ✓ Details knowledge of Linear Regression and implementing of the same in appropriate scenario
- ✓ Clustering Model(K-Mean) implementation and Model Performance Metrics Analysis

COURSE

| # | BASIC COURSE CURRICULUM | DURATION (HOURS) |
|----|---|------------------|
| 1 | Introduction to statistical learning process : Probability Theory, Statistical Metrics , density function(cdf, pdf etc .),Probability Distribution Function (Binomial, Normal, Poisson etc.), Anova, correlation | 6 |
| 2 | Introduction to Machine Learning coding Language | 8 |
| 3 | Data Manipulation(Data Framing ,Merging, Indexing, Row column manipulation and operation) | 4 |
| 4 | Hypothesis Testing(Null, Alternative hypothesis) | 2 |
| 5 | Data Visualization using different libraries | 4 |
| 6 | Different Types of learning process : (Supervised and Unsupervised learning, Regression, Classification) | 2 |
| 7 | Data Pre-processing and Exploratory Data Analysis (Dropping NA, Missing value Imputation, Outlier Detection), Multicollinearity | 4 |
| 8 | Steps of Data Science/Machine Learning Algorithm: Checking Bias-Variance trade off, Optimal Model Selection(AIC,BIC, Adjusted R ²), Variable Selection, Parameter Shrinkage, Cross validation , Model Accuracy Checking, ROC Plot . | 6 |
| 9 | Linear Regression : Model and Performance Metrics | 6 |
| 10 | Project -1 | 4 |
| 11 | Q&A Session | 2 |
| 12 | Clustering Overview & Understanding | 4 |
| 13 | Clustering Model(K-Mean) and Performance Metrics | 2 |
| 14 | Project -2 | 4 |
| 15 | Question and Answer | 2 |

TOTAL

60

COURSE SCHEDULE*

| WEEK | DAY | TOPIC | HOURS |
|-----------------|----------------|---|-----------------|
| Week 1 | Day 1 | Introduction to statistical learning process(Part-1) | 4 |
| Week 1 | Day 2 | Introduction to statistical learning process(Part-2) .Q&A Session | 2 |
| Week 1,2 | Day 2,3 | Machine Learning coding Language | 4 |
| Week 2 | Day 3,4 | Continue of coding Language | 4 |
| Week 2,3 | Day 4,5 | Data Manipulation . Q&A Session | 4 |
| Week 3 | Day 5 | Hypothesis Testing | 2 |
| Week 3 | Day 6 | Data Visualization . Q&A Session | 4 |
| Week 4 | Day 7 | Different Types of learning process | 2 |
| Week 4 | Day 7,8 | Data Pre-processing and Exploratory Data Analysis . Q&A Session | 4 |
| Week 4,5 | Day 8,9 | Steps of Data Science/Machine Learning Algorithm | 4 |
| Week 5 | Day 9 | Continue..... | 2 |
| Week 5,6 | Day 10,11 | Linear Regression : Model and Performance Metrics | 6 |
| Week 6 | Day 11,12 | Project-1 | 4 |
| Week 6 | Day 12 | Q&A Session | 2 |
| Week 7 | Day 13 | Clustering Overview & Understanding | 4 |
| Week 7 | Day 14 | Clustering Model(K-Mean) and Performance Metrics | 2 |
| Week 7,8 | Day 14,15 | Project -2 | 4 |
| Week 8 | Day 15 | Q&A Session | 2 |
| 2 Months | 15 Days | TOTAL | 60 Hours |

**2 Days/Week, 4 Hours/Day (8 Hours/Week)*