

AURO UNIVERSITY
(INDIA)

The School of Information Technology

Program Handbook

Online Short-Term Certificate
in
Data Analytics

Module Leader
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Objective :

As we, all know that during COVID-19 we have huge amount of data available on various websites from the government. In addition, many awareness articles regarding Data Science and Data Analytics are available showing the growing demand of Data Scientists. They all have focus that every business and job will need the data analysis skill in the people working with them. Keeping this in mind, we are introducing a beginner's course for the ones who wants to have insight regarding what is data science/ analytics, its future and importance.

This course will be focusing on introduction to data science and data analytics. Its demand and need in coming time. We will discuss in detail what it is about, storytelling - art needed for the same. Different aspects of Data Analytics and what are the core of the Data Science and Data Analytics. The core concepts will be discussed in detail along with introduction of ML, AI and Deep Learning. We shall be discussing some use cases, companies using Data Analytics for their improvement. Bringing into focus what data science/ analytics people can do. There will also be introduction to R Programming and Python as these two languages are commonly used for it.

Over this entire course will be covering core components of Data Science analytics. Difference between the two. Moreover, what skill sets are needed to learn and implement data analytics. In addition, the future of Data Scientists and Data Analyst.

Learning Outcomes:

Course takers will learn the following

1. Understand Data Science and Data Analytics and its importance and future.
2. Need of knowing the art of storytelling.
3. Working and importance of data.
4. Basics of data science and data analytics and the difference.
5. Basic knowledge of how and what to work with R programming and Python.
6. Importance of implementing data analytics in business of all types.
7. Career Opportunities.
8. Basic knowledge about ML, AI, Deep Learning etc.

Assessment:

Assessment will be in the form of MCQ and Quiz. There will be graded quiz after every Unit. It will contribute to 50% of total evaluation and Final Test will be of 50%. Total Evaluation will be of 50 Marks.

Syllabus:

Unit-1. Introduction to Data Science and Data Analytics

- 1.1 What is Data Science?
- 1.2 What is Data Analytics?
- 1.2 Need, Importance and Examples
- 1.4 What is data and its importance?
- 1.5 Some points to keep in mind for aspiring data scientists.

1.6 Introduction to ML, AI, Deep Learning, R and Python

1.7 Data Science Tools and Technology.

1.8 Application

1.9 Use cases and Examples

1.10 Quiz

Unit-2. Introduction to Data Analysis Using Python and R

2.1 Understanding various packages for data analysis

2.2 Data Preprocessing and formatting

2.3 Data Analysis with the help of statistics concepts

2.4 Quiz

Unit-3. Model Development

3.1 Simple Linear Regression

3.2 Prediction and Decision Making

3.3 Quiz

Unit-4. Model Evaluation and Visualization

4.1 Model and Evaluation Refinement

4.2 Overfitting, under fitting, Model Selection

4.3 Quiz

Day- wise Execution:

Day	Topic	Duration	Assessment
1	What is Data Science? What is Data Analytics? Need, Importance and Examples What is data and its importance? Some points to keep in mind for aspiring data scientists.	1:30	MCQ QUIZ
2	Introduction to ML, AI, Deep Learning, R and Python Data Science Tools and Technology. Application Use cases and Examples	1:30	
3	Understanding various packages for data analysis Data Preprocessing and formatting	1:30	MCQ QUIZ
4	Data Analysis with the help of statistics concepts	1:30	
5	Simple Linear Regression Prediction and Decision Making	1:30	MCQ QUIZ
6	Model and Evaluation Refinement Overfitting, under fitting, Model Selection	1:30	
7	Discussion and Assessment	1 hour	