

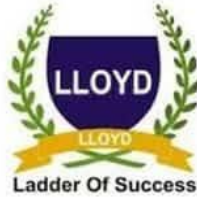
# Predictive Analytics for Management Science

Industry Integrated Certification Course

8/7/2020

LLOYD BUSINESS SCHOOL

In collaboration with Training Partner 'V3 Solutions'



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## **LLOYD BUSINESS SCHOOL**

*In Collaboration with Training Partner 'V3 Solutions'*

**Industry Integrated Certification Course**

**Predictive Analytics for Management Science  
(PAM)**

### **About Course**

A very integral component of Management is the use of past information for Business Development for futuristic growth and business efficacy. The use of historical data for business efficiency drives predictive analytics as an integral component of Data Intelligence. The Data Science and Predictive Analytics aspires to develop abilities in inferential thinking and handling business challenges. It explores foundational concepts in data management, processing, statistical computing, and dynamic visualization using modern programming tools.

Statistical methods used in engineering and computer science are introduced to complement the traditional manager's toolbox of statistical methods. Effective decision making through modelling and predictive analytical solutions can drive intelligence in business transformations. The course offers tools and techniques through which modelling techniques and deployment of effective predictive models can be implemented.

### **This course aims to provide:**

- The basics of supervised learning – prediction and classification
  - Prediction models including multiple linear regression, artificial neural networks, regression trees, K-nearest Neighbors.
- Classification models, classification trees, NaïveBayes models, and Support Vector Machines Model validation by means of data partitioning
- Scoring Models on data sets with outcomes yet to be realized
- Methods of unsupervised learning – exploratory data analysis (EDA), principal components, cluster analysis, association rules

- Ensemble modelling where predictions and classifications are made using combinations of models
- How to use standard Data Mining Packages including SPSS Modeller, and R

### Who can attend?

- Students who would like to pursue a expert course in Analytics: Predictive Analytics
- Managers who want to gain a comprehensive understanding of Analytics.
- Young executives aspiring to enter and grow their careers in Management Domain.
- Academicians who are inclined towards research.

### Detailed Course

Course : Predictive Analytics for Data Science		Areas	Delivery Hours
<b>Module 1: Introduction to Data Mining</b>			<b>5hrs</b>
<b>1.1 Data Mining and Basics</b>	1. What is Data Mining? 2. Terminology of Data Mining types of Variables: Interval, Nominal (Unordered Categorical), and Ordinal (Ordered Categorical)		2hrs
<b>1.2 Data Mining Process</b>	1.Core Ideas in Data Mining 2.CRISP-DM Methodology Steps of Model Development i. Sampling from a Database ii. Pre-processing and Cleaning the Data iii. Partitioning the Data: Training, Validation, and Test data sets iv. Model Evaluation and Comparison of Models		3hrs
<b>Module 2 Prediction Methods</b>			<b>10hrs</b>
<b>2.1 Basic Methods for Prediction</b>	1.Prediction Methods : Linear Regression, Regression Trees, CHAID Neural		2hrs

	Networks	
<b>2.2 Classification Methods</b>	<ol style="list-style-type: none"> <li>1. Classification Methods</li> <li>2. The Naïve Rule</li> <li>3. Naïve-Bayes Classifier</li> <li>4. K-Nearest Neighbors</li> <li>5. Classification Trees</li> <li>6. Neural Nets</li> <li>7. Logistic Regression</li> <li>8. Support Vector Machines (SVM)</li> </ol>	4hrs
<b>2.3 Rules of Association</b>	<ol style="list-style-type: none"> <li>1. Association Rules :The A priori Algorithm</li> </ol>	2hrs
<b>2.4 Cluster Analysis</b>	<ol style="list-style-type: none"> <li>1. Cluster Analysis Basics</li> <li>2. Hierarchical Clustering</li> <li>3. Non-hierarchical Clustering – the K-means Algorithm</li> </ol>	2hrs
<b>Module 3 Model Scoring and Deployment</b>		<b>5hrs</b>
<b>3.1 Introduction Scoring of Models</b>	<ol style="list-style-type: none"> <li>1. Ways of Scoring Models</li> <li>2. Finding the Best Model Fit</li> <li>3. Deployment of the Model</li> <li>4. Testing the Model</li> </ol>	5hrs
<b>Module 4 R Fundamentals</b>		<b>10hrs</b>
<b>4.1 Data Visualization Using R</b>	<p>Basic Visualization Tools :</p> <ol style="list-style-type: none"> <li>1. Bar Charts</li> <li>2. Histogram</li> <li>3. Pie Charts</li> <li>4. Scatter Plots</li> <li>5. Line Plots</li> </ol>	3hrs
<b>4.2 Special Visualization Tools</b>	<ol style="list-style-type: none"> <li>1. Word Clouds</li> <li>2. Radar Charts</li> <li>3. Waffle Charts</li> <li>4. Box Plots</li> </ol>	4hrs
<b>4.3 Statistical Analysis using R</b>	<ol style="list-style-type: none"> <li>1. Dplyr Library for Summarised statistics</li> </ol>	3hrs

2.Predictive Analysis using R	
<b>5.Module Project Evaluation</b>	<b>10hrs</b>
<b>5.1 Project Development</b>	<p>Case and Project Development</p> <ol style="list-style-type: none"> <li>1. HR Attrition Analysis using Predictive Modelling</li> <li>2. Project assignment using SPSS Modeller</li> </ol> <p style="text-align: center;">(Projects and cases )</p>
<b>TOTAL</b>	<b>40HRS</b>

***Learning Outcomes:***

The students learning outcomes are designed to specify what the students will be able to perform after completion of the course:

- Ability to study the characteristics of datasets and perform descriptive statistic on the dataset.
- Ability to select and implement machine learning techniques (Auto AI) and understanding the data science methodology.
- Ability to create models and deploy them to test applications in real life scenarios.

***References***

1. Breiman, Leo (2001), "Statistical Modeling: The Two Cultures," Statistical Science,

***Websites***

<https://www.ibm.com/analytics/predictive-analytics>