



Digital Transformation and Innovation

Data Science for Business Intelligence

Course Introduction

Data and effective management of it is critical for any business as it helps them make decisions based on trends, statistical numbers and facts. Due to this importance of data, data science as a multi-disciplinary field developed. It utilizes scientific approaches, frameworks, algorithms, and procedures to extract insight from a massive amount of data.

This course is designed to provide participants with the essential concepts and techniques for data mining and its uses in the business applications to enable business intelligence. The course highlights topics such as data mining tools to model business problems and interesting patterns for decision support as well as several cases that discuss strategies, outcomes and impact on organizations when using data mining.

Target Audience

- Business and technology leaders
- Business Unit Managers
- Business Development Consultants
- General Managers / Regional Managers
- Senior and mid-level leaders
- individual leaders of all levels in the organization
- Art Director
- Marketing Consultants
- Marketing Development Manager

Learning Objectives

- Effectively deploy data science and how to build your organisation capability to support this
- Recognize the latest developments and make proactive and evidence-based business decisions instead of reactive, trial and- error based ones
- Understand what data is and create insights gathered from data solutions and all other available data sets
- Manage the entire process of using data to make better business decisions: extraction, cleaning, understanding, modeling, and presenting.
- Develop an organised framework to capitalise on data opportunities and maximise its immense untapped value.
- Lead and manage a skilled team to innovate and harness the value of data in your business

Course Outline

- **Day 01**

- Data Visualization**

- How to use cutting-edge software to crunch large data sets into powerful and informative visualisations.
 - Transform, understand and simplify data, using it to move your organisation from
 - ‘What is data?’ to knowing why, when and how to use it for competitive advantage.

- Introduction to Predictive Analytics**

- Simple linear regression
 - Multiple linear regression, interpretation, and basic inference

Predictive Modelling

- How to use data mining and probability to forecast outcomes.
- Identifying features that are likely to influence future results and successes using historical data

• Day 02

Classification

- Predict future successes and solve problems before they occur.

Model Accounting and Multicollinearity

- Extra and partial sums of squares, R-squared
- Newfood and Quality Control cases
- Multicollinearity
- Quality control case
- Residual, QQ and influence plots

Diagnostics and Transformations

- Transformations, the multiplicative model, polynomials
- Business failure and purifier cases

• Day 03

Categorical Predictor Variables, Interactions and Logistic Regression

- Dummy variables
- Interactions
- Logistic regression

Model Evaluation, Selection and Regularization

- Confusion tables, ROC curves, AUC
- Penalized measures of fit
- Test sets and k-fold cross validation
- Variable subset selection
- Ridge regression and the lasso

• Day 04

Midterm and Smoothing

- In-class midterm, 80 minutes, covers chapters 3 and 4 (not 5 and 6)
- Bin smoothers, k-nearest neighbors
- Step functions, piecewise linear models and cubic splines

GAMS and Trees

- Generalized additive models
- CART

• Day 05

Bagging, Random Forests, Principal Components

- Bagging and random forests
- Stumps, shrubs, boosted trees as time permits
- Principal component analysis

Clustering and Recommendation Systems

- K-means and hierarchical clustering
- Distance metrics
- Overview of recommendation systems: popularity, user-based, item-based, SVD as time permits
- How to develop meaningful segmentations or clusters with similarities.
- Develop more targeted customer engagement strategies or identify similar products and build recommendation engines.

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 1, 2025	April 5, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Sept. 1, 2025	Sept. 5, 2025	5 days	4250.00 \$	UAE - Dubai
Nov. 3, 2025	Nov. 7, 2025	5 days	4950.00 \$	Spain - Barcelona