



*Compile and Report Data  
(information and Document)*



# Course Description

The very first step in data analysis is to identify the need for data, followed by developing an ability to capture the right type of data. The most difficult step in analysis is often getting sensible data, particularly in the context of your organisation's data management strategy.

This course will teach you the best practices to overcome some common obstacles in data capture, collection, and analysis. You will also learn strategies to recognise the best types of data to match your needs, look at the various methods to collect primary and secondary data, and also evaluate a range of research techniques.

The participants of this program will be introduced to data sources, data models, data management techniques and data ownership, all of which are all essential elements of a data-driven organisation.

# Course Objectives

**Upon completing this Course successfully, participants will be able to:**

Describe the key economic, psychological and motivational concepts that influence reward

Discuss the role of reward strategies and policies in an organisation

Contribute to the administration of employee-reward policies and processes

Differentiate between the factors that influence employee satisfaction with the reward system

Defend the case for non-financial rewards in attracting, retaining and motivating people

Design a strategic reward plan

# Who should attend?

**This Data Capture, Collection and Analysis Course would be suitable for:**

- Data analysts
- Business intelligence analysts
- Data visualiser
- Data and analytics managers
- Any professional who is interested in learning how data can be used in decision-making
- Individuals who require skills and knowledge to gather data to use in an analysis project

## *Teaching Methodology*

**A variety of teaching methodologies will be employed. These methodologies are designed to engage participants, facilitate active learning, and enable the practical application of concepts:**

- Mini lectures
- Case Study Analysis
- Group Discussions
- Feedback and Reflection Sessions

## **BASICS OF INSIGHT GENERATION & DIFFERENT DATA SCIENCE FIELDS**

### **Morning Session: Basics of Insight Generation**

- **Data analytics is the new sliced bread**
  - Introduction to data analytics
  - The importance and impact of data analytics in modern business
  - Case Study: Successful implementation of data analytics in a retail company
- **Data value chain**
  - Understanding the data lifecycle: collection, processing, analysis, and presentation
  - Case Study: Data value chain in a logistics company
- **Tools for generating insights**
  - Overview of tools: Excel, SQL, Python, R, Tableau
  - Hands-on Activity: Using Excel and SQL for basic data analysis
- **Business intelligence and data mining**
  - Differences and intersections between BI and data mining
  - Case Study: Data mining techniques in fraud detection



## **Afternoon Session: The Different Data Science Fields**

- **Analysis vs. analytics**
  - Defining analysis and analytics, their scope, and applications
- **Why are there so many data science catchwords?**
  - Understanding the jargon: analytics, data science, BI, ML, AI
- **Introduction to Business Analytics**
  - Fundamentals and applications in decision-making
- **Introduction to Data Analytics**
  - Techniques and tools used in data analytics
- **Introduction to Data Science**
  - Key concepts, methodologies, and tools
- **Introduction to Business Intelligence (BI), Machine Learning (ML), Artificial Intelligence (AI)**
  - Overview of BI, ML, and AI
  - Hands-on Activity: Simple data analysis with BI tools
- **BI vs. ML vs. AI – key characteristics and differences**
  - Comparative analysis of BI, ML, and AI
  - Case Study: Application of BI, ML, and AI in healthcare

## **INTRODUCTION TO DATA AND DATA SCIENCE & COMMON DATA SCIENCE TECHNIQUES**

### **Morning Session: Introduction to Data and Data Science**

- **What is data science?**
  - Definition, scope, and significance
- **History of data vs. information vs. data science**
  - Evolution from data collection to data science
- **What is the purpose of data science fields?**
  - Objectives and outcomes of data science
- **Why do we need data science disciplines?**
  - The importance of data science in modern business
  - Case Study: Data science in predictive maintenance

## **Afternoon Session: Common Data Science Techniques**

- **Traditional Data: Techniques & Real-life Examples**
  - Descriptive statistics, regression analysis
  - Case Study: Traditional data analysis in market research
- **Big Data: Techniques & Real-life Examples**
  - Hadoop, Spark, NoSQL databases
  - Case Study: Big data techniques in social media analysis
- **Business Intelligence (BI): Techniques & Real-life Examples**
  - Dashboards, reporting, data warehousing
  - Case Study: BI in financial reporting
- **Traditional Methods: Techniques & Real-life Examples**
  - Time series analysis, hypothesis testing
  - Case Study: Traditional methods in quality control
- **Machine Learning (ML): Techniques, Types & Real-life Examples**
  - Supervised, unsupervised, and reinforcement learning
  - Case Study: Machine learning in customer segmentation

## COMMON DATA SCIENCE TOOLS & BASIC STATISTICS

### Morning Session: Common Data Science Tools

- **All the tools needed in business intelligence analytics and data science**
  - Overview of essential tools: Python, R, SQL, Tableau, Power BI
  - Hands-on Activity: Introduction to Python and R for data analysis
- **Data Science Jobs: What do they involve and what to look out for?**
  - Roles and responsibilities in data science careers
  - Interactive Discussion: Career paths and job market trends
- **Dispelling common misconceptions**
  - Addressing myths and misunderstandings about data science
- **Population vs. sample**
  - Understanding the difference and its importance in analysis
  - Case Study: Sampling techniques in survey research

## **Afternoon Session: Basic Statistics: Foundations of Quantitative Insights**

- **Basic statistics**
  - Mean, median, mode, standard deviation, variance
- **Types of variables**
  - Nominal, ordinal, interval, and ratio scales
- **Measures of central tendency**
  - Calculation and interpretation
- **Measures of dispersion**
  - Range, interquartile range, variance, standard deviation
  - Hands-on Activity: Statistical analysis using Excel

## **THE NORMAL DISTRIBUTION AND HISTOGRAMS & DATA VISUALIZATION**

### **Morning Session: The Normal Distribution and Histograms**

- **Normal distribution and histograms**
  - Characteristics of normal distribution, creating histograms
- **The empirical rule**
  - Applying the 68-95-99.7 rule
- **Covariance and correlation**
  - Understanding and calculating covariance and correlation
  - Case Study: Correlation analysis in investment portfolios

## **Afternoon Session: Data Visualization**

- **Data visualization and Anscombe's Quartet**
  - Importance of visualization, lesson from Anscombe's Quartet
- **Data Cleaning using Tableau**
  - Techniques for cleaning and preparing data in Tableau
- **Bar chart and heat maps**
  - Creating and interpreting bar charts and heat maps
  - Hands-on Activity: Creating visualizations in Tableau

## ADVANCED CHARTS AND DASHBOARDS & DEMAND FORECASTING

### Morning Session: Advanced Charts and Dashboards

- **Bar in bar graph and bullet graph visualization**
  - Advanced visualization techniques
  - Hands-on Activity: Creating bar in bar and bullet graphs
- **Generating insights from social media data**
  - Techniques and tools for social media analytics
  - Case Study: Social media analytics in brand management
- **Dashboards**
  - Designing and implementing interactive dashboards
  - Hands-on Activity: Creating dashboards in Power BI

### Afternoon Session: Demand Forecasting

- **Regression analysis**
  - Techniques and applications of regression analysis
- **Demand forecasting**
  - Methods and tools for accurate demand forecasting
- **Demand forecasting & smoothing methods**
  - Techniques for smoothing and improving forecast accuracy
  - Case Study: Demand forecasting in supply chain management