



I. Course Title and Description

Data Analytics Essentials

This course is designed to provide students with a basic understanding of the main concepts in Data Analytics. Students taking the class will learn about descriptive statistics, measures of variability and location, forecasting techniques, and Regression Analysis.

II. Target Audience

The target audience are students and professionals of any age who want to increase their data analysis capabilities. Students may be undergraduate or graduate and may be from a business or liberal arts and sciences background. Analyzing data is most important for anybody who wants to find relationships between different variables regardless of their professional background.

III. Course Outcomes

This course will serve as an introduction to the use of Data Analytics in the workplace. By the end of the class the students will be familiar with concepts that are essential to creating forecasts and measuring their accuracy, as well as how to use Microsoft Excel to conduct a wide range of analyses.



IV. Content by Module

1. **Module 1:** Introduction to Data Analytics.

- Defining Business Analytics
- Descriptive Analytics
- Diagnostic Analytics
- Predictive and Prescriptive Analytics

2. **Module 2:** Descriptive Statistics

- Basic Definitions
- Measures of Location and Variability
- Other elements of Descriptive Statistics
- Basic Descriptive Statistics Charts and Graphs
- Creating a Basic Descriptive Statistics Report
- Calculating the Interquartile Range
- Creating Histograms
- Identifying Outliers

3. **Module 3:** Linear Regression

- Simple Linear Regression Concepts
- Multiple Linear Regression Concepts
- Building a Simple Linear Regression Model
- Building a Multiple Linear Regression Model

4. **Module 4:** Time Series Analysis and Forecasting

- Forecasting Basic Concepts
- Qualitative Forecast Methods:



- Surveys
- Expert Opinion
- Delphi Methodology
- Quantitative Forecast Methods:
 - Naïve Method
 - Simple Average
 - Moving Average
 - Exponential Smoothing
 - Linear Regression Analysis
- Forecast Accuracy
 - Forecast Error
 - Mean Forecast Error
 - Mean Absolute Error
 - Mean Squared Error
 - Mean Absolute Percentage Error