

# Data Analytics Course Syllabus

## Business Statistics

### Introduction to Statistical Analysis

- Counting, Probability, and Probability Distributions
- Sampling Distributions
- Estimation and Hypothesis Testing
- Scatter Diagram
- Anova and Chisquare
- Imputation Techniques
- Data Cleaning
- Correlation and Regression

### Introduction to Data Analytics

- Data Analytics Overview
- Importance of Data Analytics
- Types of Data Analytics
- Descriptive Analytics
- Diagnostic Analytics
- Predictive Analytics
- Prescriptive Analytics
- Benefits of Data Analytics
- Data Visualization for Decision Making
- Data Types, Measure Of central tendency, Measures of Dispersion
- Graphical Techniques, Skewness & Kurtosis, Box Plot
- Descriptive Stats
- Sampling Funnel, Sampling Variation, Central Limit Theorem, Confidence interval

## Excel: Basics to Advanced

- Excel tutorial
- Text to Columns



- Concatenate
- The Concatenate Function
- The Right Function with Concatenation
- Absolute Cell References
- Data Validation
- Time and Date Calculations
- Conditional Formatting
- Exploring Styles and Clearing Formatting
- Using Conditional Formatting to Hide Cells
- Using the IF Function
- Changing the “Value if false” Condition to Text
- Pivot Tables
- Creating a Pivot Table
- Specifying PivotTable Data
- Changing a PivotTables Calculation
- Filtering and Sorting a PivotTable
- Creating a PivotChart
- Grouping Items
- Updating a PivotTable
- Formatting a PivotTable
- Using Slicers
- Charts
- Creating a Simple Chart
- Charting Non-Adjacent Cells
- Creating a Chart Using the Chart Wizard
- Modifying Charts
- Moving an Embedded Chart
- Sizing an Embedded Chart
- Changing the Chart Type
- Chart Types
- Changing the Way Data is Displayed
- Moving the Legend



- Formatting Charts
- Adding Chart Items
- Formatting All Text
- Formatting and Aligning Numbers
- Formatting the Plot Area
- Formatting Data Markers
- Pie Charts
- Creating a Pie Chart
- Moving the Pie Chart to its Own Sheet
- Adding Data Labels
- Exploding a Slice of a Pie Chart
- Data Analysis – Overview
- types of Data Analysis
- Data Analysis Process
- Working with Range Names
- Copying Name using Formula Autocomplete
- Range Name Syntax Rules
- Creating Range Names
- Creating Names for Constants
- Managing Names
- Scope of a Name
- Editing Names
- Applying Names
- Using Names in a Formula
- Viewing Names in a Workbook
- Copying Formulas with Names
- Difference between Tables and Ranges
- Create Table
- Table Name
- Managing Names in a Table
- Table Headers replacing Column Letters
- Propagation of a Formula in a Table

- Resize Table
- Remove Duplicates
- Convert to Range
- Table Style Options
- Table Styles
- Cleaning Data with Text Functions
- Removing Unwanted Characters from Text
- Extracting Data Values from Text
- Formatting Data with Text Functions
- Date Formats
- Conditional Formatting
- Sorting
- Filtering
- Lookup Functions
- Pivoting

## SQL

- Introduction to Oracle Database
- Retrieve Data using the SQL SELECT Statement
- Learn to Restrict and Sort Data
- Usage of Single-Row Functions to Customize Output
- Invoke Conversion Functions and Conditional Expressions
- Aggregate Data Using the Group Functions
- Display Data from Multiple Tables Using Joins
- Use Sub-Queries to Solve Queries
- The SET Operators
- Data Manipulation Statements
- Use of DDL Statements to Create and Manage Tables
- Other Schema Objects
- Control User Access
- Management of Schema Objects
- Manage Objects with Data Dictionary Views

- Manipulate Large Data Sets
- Data Management in Different Time Zones
- Retrieve Data Using Sub-queries
- Regular Expression Support

## Tableau

### Module 1: Tableau Course Material

- Start Page
- Show Me
- Connecting to Excel Files
- Connecting to Text Files
- Connect to Microsoft SQL Server
- Connecting to Microsoft Analysis Services
- Creating and Removing Hierarchies
- Bins
- Joining Tables
- Data Blending

### Module 2: Learn Tableau Basic Reports

- Parameters
- Grouping Example 1
- Grouping Example 2
- Edit Groups
- Set
- Combined Sets
- Creating a First Report
- Data Labels
- Create Folders
- Sorting Data
- Add Totals, Sub Totals and Grand Totals to Report

### Module 3: Learn Tableau Charts



- Area Chart
- Bar Chart
- Box Plot
- Bubble Chart
- Bump Chart
- Bullet Graph
- Circle Views
- Dual Combination Chart
- Dual Lines Chart
- Funnel Chart
- Traditional Funnel Charts
- Gantt Chart
- Grouped Bar or Side by Side Bars Chart
- Heatmap
- Highlight Table
- Histogram
- Cumulative Histogram
- Line Chart
- Lollipop Chart
- Pareto Chart
- Pie Chart
- Scatter Plot
- Stacked Bar Chart
- Text Label
- Tree Map
- Word Cloud
- Waterfall Chart

#### Module 4: Learn Tableau Advanced Reports

- Dual Axis Reports
- Blended Axis
- Individual Axis
- Add Reference Lines

- Reference Bands
- Reference Distributions
- Basic Maps
- Symbol Map
- Use Google Maps
- Mapbox Maps as a Background Map
- WMS Server Map as a Background Map

### Module 5: Learn Tableau Calculations & Filters

- Calculated Fields
- Basic Approach to Calculate Rank
- Advanced Approach to Calculate Ra
- Calculating Running Total
- Filters Introduction
- Quick Filters
- Filters on Dimensions
- Conditional Filters
- Top and Bottom Filters
- Filters on Measures
- Context Filters
- Slicing Fliters
- Data Source Filters
- Extract Filters

### Module 6: Learn Tableau Dashboards

- Create a Dashboard
- Format Dashboard Layout
- Create a Device Preview of a Dashboard
- Create Filters on Dashboard
- Dashboard Objects
- Create a Story

### Module 7: Server

- Tableau online.
- Overview of Tableau Server.
- Publishing Tableau objects and scheduling/subscription.

## Power BI

### Module 1: Introduction to Power BI

- Get Started with Power BI
- Overview: Power BI concepts
- Sign up for Power BI
- Overview: Power BI data sources
- Connect to a SaaS solution
- Upload a local CSV file
- Connect to Excel data that can be refreshed
- Connect to a sample
- Create a Report with Visualizations
- Explore the Power BI portal

### Module 2: Viz and Tiles

- Overview: Visualizations
- Using visualizations
- Create a new report
- Create and arrange visualizations
- Format a visualization
- Create chart visualizations
- Use text, map, and gauge visualizations and save a report
- Use a slicer to filter visualizations
- Sort, copy, and paste visualizations
- Download and use a custom visual from the gallery

### Module 3: Reports and Dashboards

- Modify and Print a Report
- Rename and delete report pages
- Add a filter to a page or report



- Set visualization interactions
- Print a report page
- Send a report to PowerPoint
- Create a Dashboard
- Create and manage dashboards
- Pin a report tile to a dashboard
- Pin a live report page to a dashboard
- Pin a tile from another dashboard
- Pin an Excel element to a dashboard
- Manage pinned elements in Excel
- Add a tile to a dashboard
- Build a dashboard with Quick Insights
- Set a Featured (default) dashboard
- Ask Questions about Your Data
- Ask a question with Power BI Q&A
- Tweak your dataset for Q&A
- Enable Cortana for Power BI

#### Module 4: Publishing Workbooks and Workspace

- Share Data with Colleagues and Others
- Publish a report to the web
- Manage published reports
- Share a dashboard
- Create an app workspace and add users
- Use an app workspace
- Publish an app
- Create a QR code to share a tile
- Embed a report in SharePoint Online

#### Module 5: Other Power BI Components and Table Relationship

- Use Power BI Mobile Apps
- Get Power BI for mobile
- View reports and dashboards in the iPad app

- Use workspaces in the mobile app
- Sharing from Power BI Mobile
- Use Power BI Desktop
- Install and launch Power BI Desktop
- Get data
- Reduce data
- Transform data
- Relate tables
- Get Power BI Desktop data with the Power BI service
- Export a report from Power BI service to Desktop

## Module 6: DAX functions

- New Dax functions
- Date and time functions
- Time intelligence functions
- Filter functions
- Information functions
- Logical functions
- Math & trig functions
- Parent and child functions
- Text functions

## Python Basics

- The print statement
- Comments
- Python Data Structures & Data Types
- String Operations in Python
- Simple Input & Output
- Simple Output Formatting
- Deep copy
- Shallow copy
- Operators in python