



# 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

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- Sampling Funnel, Sampling Variation, Central Limit Theorem, Confidence interval

## **Excel: Basics to Advanced**

- Excel tutorial
- Text to Columns

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- 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

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- 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

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- 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

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- 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**

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- 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

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- 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 Filters
- 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



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- 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

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- 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

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- 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