



**ANALYTIX** LABS

## **Analytics Edge**

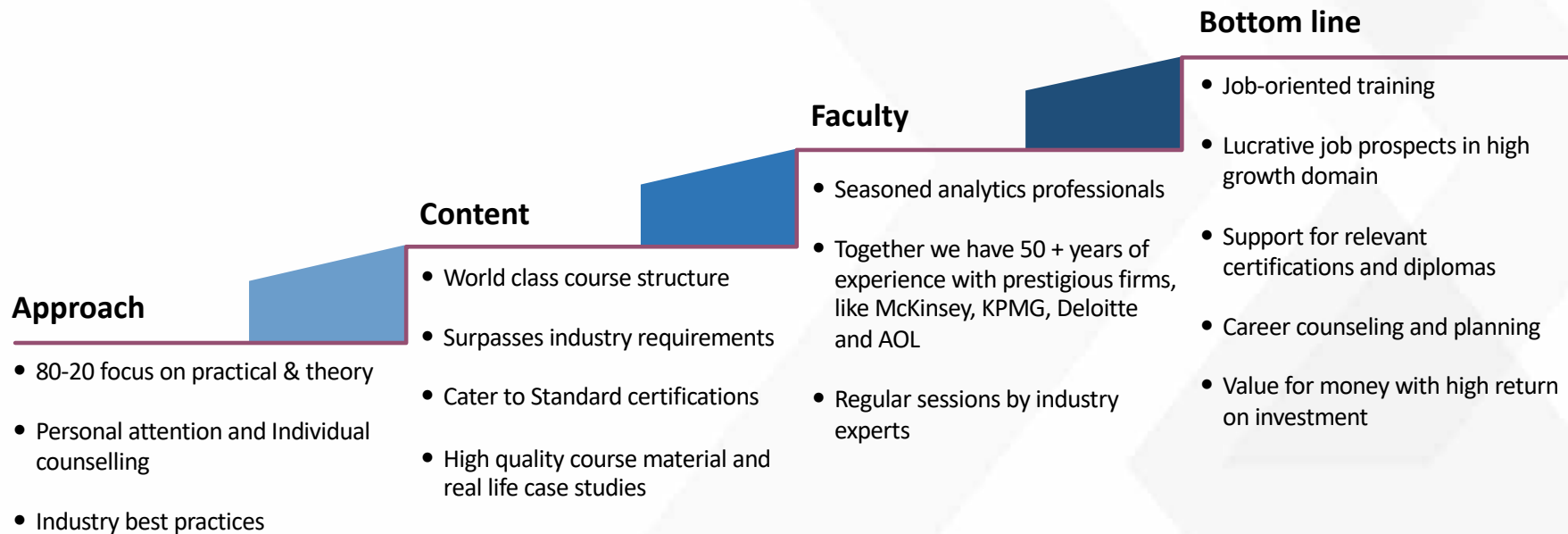
**Job oriented global certification  
program program crafted by experts**

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***Learn to Evolve***

# About AnalytixLabs

AnalytixLabs is a capability building and training solutions firm led by McKinsey, IIM, ISB and IIT alumni with deep industry experience and a flair for coaching. We are focused at helping our clients develop skills in basic and advanced analytics to enable them to emerge as “Industry Ready” professionals and enhance career opportunities. AnalytixLabs has been also featured as top institutes by prestigious publications like Analytics India Magazine and Higher Education Review, since 2013.

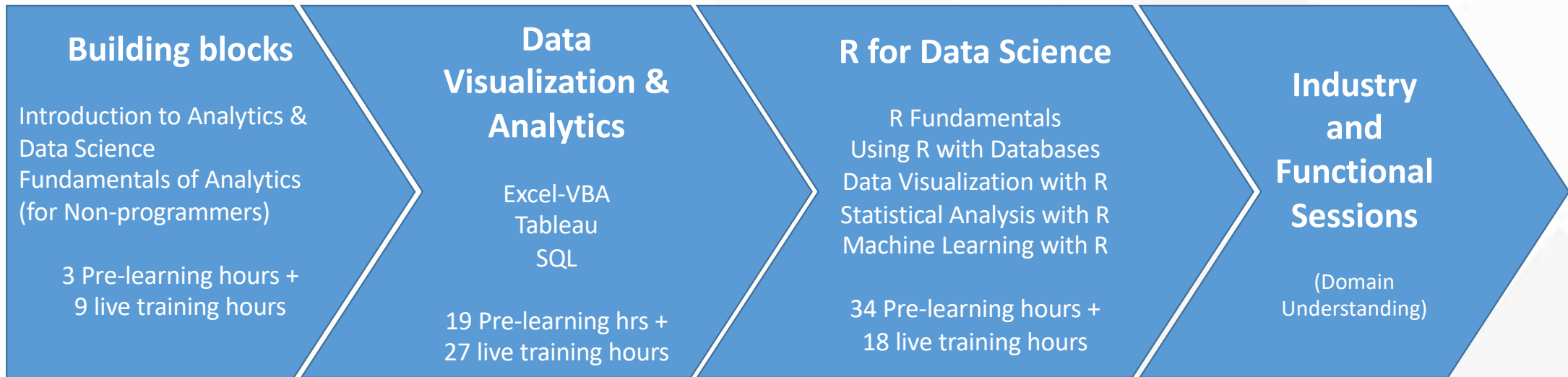


Candidates trained by us are working in leading companies across industries...



# Program Objective – Analytics Edge

On average 8 hours of self-study per week



**10 Assignments and Projects included within this course**

*\*Pre-learning refers to basic foundation concepts using e-learning modules in self-paced mode with doubts support*

# 1. Building Blocks

## Introduction to Bridge Course & Analytics Software's

### Basic Excel

- Excel Environment
- Key Terminologies
- Short Cuts
- Key Functionalities
- Copy-paste-paste special
- Formatting & conditional Formatting
- Basic Excel Functions - Types of Functions
- Relational operators
- Data Sorting, Filtering and Data Validation
- Understanding of Name Ranges
- Pivot tables - Charts
- Basics of charts

### Basic Programming Elements

- Overview of programming languages
- Basics of programming elements
  - variables, data types, data structures, loops, conditional statements, inputs, outputs, functions etc
- Understanding key terms
  - Client/server
  - Database
  - Hosting/deployment

## Introduction to Basic Statistics

- Introduction to Statistics
- Measures of central tendencies
- Measures of variance
- Measures of frequency
- Measures of Rank
- Basics of Probability, distributions
- Conditional Probability (Bayes Theorem)

## RDBMS & SQL (Basics)

- **Basic RDBMS Concepts**
  - Introduction to Relational Database management system. Why SQL?
  - A glance at the tool and its advantages and disadvantages
  - Understanding Schema, ERDs and Metadata
- Introduction to MS SQL Server
  - What is SQL – A Quick Introduction
  - Installing MS SQL Server for windows
  - Introduction to SQL Server Management Studio
  - Understanding basic database concepts
  - Getting started

## Introduction to Analytics & Data Science

- What is analytics & Data Science?
- Business Analytics vs. Data Analytics vs. Data Science
- Common Terms in Analytics
- Analytics vs. Data warehousing, OLAP, MIS Reporting
- Types of data (Structured vs. Unstructured vs. Semi Structured)
- Relevance of Analytics in industry and need of the hour
- Critical success drivers
- Overview of analytics tools & their popularity
- Analytics Methodology & problem solving framework
- Stages of Analytics

## 2. Data Visualization & Analytics (Excel) (1/3)

### Quick Recap of Basics of Excel

#### Data manipulation using functions

- Descriptive functions
- Logical functions: IF, and, or, not
- Date and Time functions
- Text functions
- Array functions
- Use and application of lookup functions
- Limitations of lookup functions
- Using Index, Match, Offset, reverse vlookup

#### Data analysis and reporting

- Data Analysis using Pivot Tables - use of row and column shelf, values and filters
- Difference between data layering and cross tabulation, summary reports, advantages and limitations
- Change aggregation types and summarization
- Creating groups and bins in pivot data
- Concept of calculated fields, usage and limitations
- Changing report layouts - Outline, compact and tabular forms
- Show and hide grand totals and subtotals
- Creating summary reports using pivot tables

### Data Visualization in Excel

- Overview of chart types – column/bar charts, line/area , pie, doughnut charts, scatter plots
- How to select right chart for your data
- Creating and customizing advance charts - thermometer charts, waterfall charts, population pyramids

### Overview of Dashboards

- What is dashboard & Excel dashboard
- Adding icons and images to dashboards
- Making dashboards dynamic

### Create dashboards in Excel - Using Pivot controls

- Concept of pivot cache and its use in creating interactive dashboards in excel
- Pivot table design elements - concept of slicers and timelines
- Designing sample dashboard using Pivot Controls
- Design principles for including charts in dashboards - do's and dont's

### Business Dashboard Creation

- Management Dashboard for Sales & Services
- Best practices - Tips and Tricks to enhance dashboard designing



## 2. Data Visualization & Analytics (SQL) (2/3)

### Quick Recap of RDBMS & Basic SQL

#### Data based objects creation (DDL Commands)

- Creating databases and tables. Understanding data types
- Inserting values into the table
- Altering table properties
- Introduction to Keys and constraints
- Creating, Modifying & Deleting Tables
- Create Table & Create Index statements
- Drop & Truncate statements – Uses & Differences
- DDL Statements with constraints
- Import and Export wizard to get the data in SQL server from excel files or delimited files

#### Data manipulation (DML Commands)

- Data Manipulation statements
- Insert, Update & Delete statements
- Select statement – Sub setting, Filters, Sorting. Removing Duplicates, grouping and aggregations etc
- Operators, predicates and built in functions(Top, distinct, Limit)
- Where, Group By, Order by & Having clauses
- SQL Functions – Number, Text, Date, etc
- SQL Keywords – Top, Distinct, Null, etc
- SQL Operators - Relational (single valued and multi valued), Logical (and, or, not), Use of wildcard operators and wildcard characters, etc

#### Accessing data from Multiple Tables using SELECT

- Append and Joins
- Union and Union All – Use & constraints
- Intersect and Except statements
- Table Joins - inner join, left join, right join, full join
- Cross joins/cartisian products, self joins, natural joins etc
- Inline views and sub-queries & it's types
- Optimizing your work
- Update operations with and without joins

#### Advanced SQL

- Creating table copy and database copy
- Views
- Transactions
- Stored Procedures in SQL
- Crud operations using stored procedures
- Window functions in SQL
- Miscellaneous Topics: Rollup and cube

#### Apply learning's on Business Case study

## 2. Data Visualization & Analytics (Tableau) (3/3)

### Getting Started

- What is Tableau?
- Tableau product suite
- How Does Tableau Work?
- Tableau Architecture
- Connecting to Data & data source concepts
- Understanding the Tableau workspace
- Dimensions and Measures
- Data Types & Default Properties
- Tour of Shelves & Marks Card
- Using Show Me
- Saving and Sharing your work-overview

### Data handling & summaries

- Date Aggregations and Date parts
- Cross tab & Tabular charts
- Totals & Subtotals
- Bar Charts & Stacked Bars
- Line Graphs with Date & Without Date
- Tree maps/Scatter Plots
- Individual Axes, Blended Axes, Dual Axes & Combination chart/Edit axis
- Parts of Views
- Sorting
- Trend/Reference Lines/Forecasting
- Filters/Context filters

### Data handling & summaries

- Sets (In/Out Sets/Combined Sets)
- Grouping/Bins/Histograms
- Drilling up/down – drill through
- Hierarchies
- View data
- Actions (across sheets)

### Building Advanced Reports/ Maps

- Explain latitude and longitude
- Default location/Edit locations
- Building geographical maps
- Using Map layers

### Calculated Fields

- Aggregate vs. Disaggregate data
- Explain - #Number of Rows
- Basic Functions (String/Date/Numbers etc)
- Usage of Logical conditions

### Table calculations

- Explain scope and direction
- Percent of Total, Running / Cumulative calculations
- Introduction to LOD (Level of Detail) Expressions
- User applications of Table calculations

### Parameters

- Using Parameters in calculated fields
- Bins/Reference Lines
- Filters/Sets
- Display Options (Dynamic Dimension/Measure Selection)
- Create What-If/ Scenario analysis

### Building Interactive Dashboards

- Combining multiple visualizations into a dashboard (overview)
- Making your worksheet interactive by using actions
- Filter/URL/Highlight
- Complete Interactive Dashboard for Sales & Services

### Building Stories

- Story Points
- Options in Formatting your Visualization
- Working with Labels and Annotations
- Effective Use of Titles and Captions

### Working with Data

- Multiple Table Join
- Data Blending
- Difference between joining and blending data, and when we should do each
- Toggle between to Direct Connection and Extracts

### Sharing work with others

- Sharing Workbooks
- Publish to Reader/PDF
- Publish to Tableau Server and sharing on the web



# 3. R For Data Science (1/2)

## Data Importing/Exporting

- Introduction R/R-Studio - GUI
- Concept of Packages - Useful Packages (Base & Other packages)
- Data Structure & Data Types (Vectors, Matrices, factors, Data frames, and Lists)
- Importing Data from various sources
- Exporting Data to various formats
- Viewing Data (Viewing partial data and full data)
- Variable & Value Labels – Date Values

## Data Manipulation

- Creating New Variables (calculations & Binning)
- Dummy variable creation
- Applying transformations
- Handling duplicates/missing's
- Sorting and Filtering
- Sub setting (Rows/Columns)
- Appending (Row/column appending)
- Merging/Joining (Left,right,inner,full,outer)
- Data type conversions
- Renaming
- Formatting

## Data Manipulation

- Reshaping data
- Sampling
- Operators
- Control Structures (if, if else)
- Loops (Conditional, iterative loops)
- apply functions
- Arrays
- R Built-in Functions
- Text, Numeric, Date, utility
- R User Defined Functions
- Aggregation/Summarization

## Data Analysis

- Introduction exploratory data analysis
- Descriptive statistics, Frequency Tables and summarization
- Uni-variate Analysis (Distribution of data)
- Bivariate Analysis(Cross Tabs, Distributions & Relationships)

## Using R with Databases

- R and Relational Databases
- Connecting to Relational Databases using RJDBC and RODBC
- Database Design and Querying Data
- Modifying Data and Using Stored Procedures
- In-Database Analytics with R

## Data Visualization with R

- Basic Visualization Tools
  - Bar Charts/Histograms/Pie Charts
  - Scatter Plots
  - Line Plots and Regression
- Specialized Visualization Tools
  - Word Clouds/ Radar Charts
  - Waffle Charts/ Box Plots
- How to create Maps
  - Creating Maps in R
- How to build interactive web pages
  - Introduction to Shiny
  - Creating and Customizing Shiny Apps
  - Additional Shiny Features

# 3. R For Data Science (2/2)

## Introduction to Statistics

- Basic Statistics - Measures of Central Tendencies and Variance
- Building blocks - Probability Distributions - Normal distribution - Central Limit Theorem
- Inferential Statistics -Sampling - Concept of Hypothesis Testing
- Statistical Methods - Z/t-tests (One sample, independent, paired), Anova, Correlations and Chi-square

## Linear Regression: Solving regression problems

- Introduction - Applications
- Assumptions of Linear Regression
- Building Linear Regression Model
- Understanding standard metrics (Variable significance, R-square/Adjusted R-square, Global hypothesis ,etc)
- Assess the overall effectiveness of the model
- Validation of Models (Re running Vs. Scoring)
- Standard Business Outputs (Decile Analysis, Error distribution (histogram), Model equation, drivers etc.)
- Interpretation of Results - Business Validation - Implementation on new data

## Machine Learning vs Statistical Modeling & Supervised vs Unsupervised Learning

- Machine Learning Languages, Types, and Examples
- Machine Learning vs Statistical Modelling
- Supervised vs Unsupervised Learning
- Supervised Learning Classification
- Unsupervised Learning

### Supervised Learning I

- K-Nearest Neighbors
- Decision Trees
- Random Forests
- Reliability of Random Forests
- Advantages & Disadvantages of Decision Trees

### Supervised Learning II

- Regression Algorithms
- Model Evaluation
- Model Evaluation: Overfitting & Underfitting
- Understanding Different Evaluation Models

### Unsupervised Learning

- K-Means Clustering plus Advantages & Disadvantages
- Hierarchical Clustering plus Advantages & Disadvantages
- Measuring the Distances Between Clusters - Single Linkage Clustering
- Measuring the Distances Between Clusters - Algorithms for Hierarchy Clustering
- Density-Based Clustering

## Dimensionality Reduction & Collaborative Filtering

- Dimensionality Reduction: Feature Extraction & Selection
- Collaborative Filtering & Its Challenges

# 4. Industrial & Functional Sessions (Domain Understanding)

## Introduction to Data Sources for Various Industries

## Introduction to Analytics Project Management

### Marketing Analytics

- Introduction to Marketing Function
- Marketing Research - Analytics
- Customer Analytics
- Campaign Analytics
- Pricing Analytics
- Marketing Return on Investment (MROI)
- Market Mix Models

### Risk Analytics

- Introduction to Risk Function
- Enterprise Risk Function
- Credit Scoring (Application & Behavioral)
- Fraud Analytics

### Operation Analytics

- Overview of Operation Analytics
- Applications Analytics in different functions
- Service Operations
- Manufacturing
- Logistics
- Business Support Functions (HR Analytics)
- Inventory Management

### Digital Analytics (Web Analytics)

### Social Network Analytics

### Banking & Financial Services, Insurance

- Applications of analytics to various functions
- Retail Banking
- Commercial Banking
- Investment Banking
- Insurance

### Retail & E-Commerce

- Customer Analytics
- Demand & Supply Chain
- Merchandizing & planning
- Price & Promotion Analysis
- Trust Analytics
- Customer Service
- A/B Testing
- Recommendation Engines

### Pharma & Health Care

- Marketing & Sales Analytics
- Provider-Payer-Patient Analytics
- Claims Analytics
- Fraud Analytics
- MROI

### Telecom & Network

- Network Analytics
- Subscriber Analytics
- Loyalty Analytics
- Revenue Leakage Analytics

*Pre-requisite: Completion of assignments and projects of earlier modules within this course*

# Course completion and career assistance

## Course completion & Certification criteria

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- You shall be awarded an AnalytixLabs certificate only post the submission and evaluation of mandatory course project work. These will be provided as a part of the training.
- There is no pass/fail for these assignments and projects. Our objective is to ensure that trainees get strong hands-on experience so that they are well-prepared for job interviews along with performance at their jobs.
- In case the assignments and projects are not up-to-the-mark, trainees are welcome to take help and support for improvisation.
- While weekly schedule is shared with trainees for regular assignments, candidates get 3 months, post course completion, to submit their final assignment and projects.

## What is included in career assistance?

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- Post successful course completion, candidates can seek assistance from AnalytixLabs for profile building. A team of seasoned professionals will help you based on your overall education background and work experience. This will be followed by interview preparation along with mock interviews (if required)
- Job referrals are based on the requirements we get from various organizations, HR consultants and large pool of AnalytixLabs' ex-students working in various companies.
- No one can truthfully provide job guarantee, particularly for good quality job profiles in Analytics. However, most of our students do get multiple interview calls and good career options based on the skills they learn during training. For this there will be continuous support from our side for as long as required.

# Time and Investment

**Training:** 44 hours Pre-learning/ eLearning training + 54 hours live training + Practice,  
INR 30,000 + 18% GST

**Timing:** 6 hours per weekend live training (Saturday & Sunday 3 hours each) + Practice

**Training mode:** Fully interactive live online class / Classroom (In Gurgaon, Bangalore and Noida center only)

*(In addition to the above, you will also get access to the recordings for future reference and self study)*

**Components:** Learning Management System access for courseware like class recordings - study material, Industry-relevant project work

**Certification:** Participants will be awarded a **Co-branded Global certificate** on successful completion of the stipulated requirements including an evaluation

# We provide trainings both in 'fully interactive live online' and classroom\* mode



\*Classroom only available at Gurgaon, Bangalore and Noida center



# Contact Us

Visit us on: <http://www.analytixlabs.in/>

For course registration, please visit: <http://www.analytixlabs.co.in/course-registration/>

For more information, please contact us: <http://www.analytixlabs.co.in/contact-us/>

Or email: [info@analytixlabs.co.in](mailto:info@analytixlabs.co.in)

Call us we would love to speak with you: (+91) 9555219007

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Blog - <http://www.analytixlabs.co.in/category/blog/>

# Visit Us

## **Gurgaon Address:**

GF 382, Sector 29,  
Adjoining IFFCO Chowk Metro  
Station (Gate 2),  
Next to Magicpin Office,  
Gurgaon,  
Haryana- 122001

## **Bengaluru Address:**

Bldg 41, First floor,  
14th Main Road, Near BDA  
complex,  
(Landmark: Max store)  
Sector 7, HSR Layout, Bengaluru  
Karnataka - 560102

## **Noida Address:**

First Floor, A-78,  
A Block, Sector 2,  
(Adjacent to Sector 15 metro  
station)  
Noida,  
Uttar Pradesh - 201301