



ANALYTICS 360™ & ANALYTICS 360+™

# COURSE OUTLINE

ANALYTICS TRAINING INSTITUTE

(A 2016 WINNER FOR ACADEMIC EXCELLENCE IN BIG DATA AND ANALYTICS  
BIG DATA, ANALYTICS AND INSIGHTS SUMMIT, BANGALORE - 2016)

*Analytics for All*



# DEAR ANALYTICS ENTHUSIAST

## WELCOME TO THE EXCITING WORLD OF ANALYTICS!

We, and that includes you, are at the cusp of something really big. The Analytics industry is going through unprecedented growth globally. In fact NASSCOM predicts that the Analytics sector in India (which is one of the top 10 big data analytics markets globally) is expected to grow to \$16 billion from its current run rate of \$2 billion!

The fact that you have chosen to develop expertise in Analytics means that you are aware of the enormous potential ahead of us. We value your decision in choosing us, ATI, to be your Analytics learning partner.

This course outline handbook not only details the structure and learning outcomes of our flagship courses Analytics 360™ and Analytics 360 Plus™ , it also gives you an insight into why we have been the chosen Analytics learning partner for close to 25000 individuals and over 300 corporates, globally. We do hope that by taking this course you are on your way to creating a fulfilling career in Analytics.

Wishing you the very best!

*The team at ATI*

*Analytics for All*



# SNAPSHOT OF OUR JOURNEY TO DATE

Established in 2007 when Analytics Education was in a nascent stage

**First mover advantage being pioneers in the field of Analytics Education**

Driven by the vision "Analytics for All" which translates to democratising Analytics education ie., making it accessible and affordable to all

**Primary focus has been on building robust classroom training in Analytics**

COUNT OF INDIVIDUALS AND CORPORATES WE HAVE PARTNERED WITH TO BUILD ANALYTICS CAPABILITY

**25000+**  
**INDIVIDUALS**

**300**  
**CORPORATES**



# CORPORATE CLIENTS

HERE ARE SOME OF THE CORPORATES WE WORK WITH

**GENPACT**

accenture

**hp**

**Coca-Cola**

TITAN  
COMPANY

**APPLIED  
MATERIALS®**

*Analytics for All*

# THE ATI ADVANTAGE



WHAT MAKES US THE SUPERIOR CHOICE IN ANALYTICS EDUCATION



## LIFETIME ACCESS

Our courses come with Lifetime Access ensuring that you can retake or defer a class, based on your requirement.



## NETWORKING

ATI attracts professionals from amongst different organisations and domains, giving one opportunities to build networks across the Analytics sector.



## EXPERIENCED FACULTY

All faculty at ATI are experienced Analytics professionals, who have developed expertise across various domains.



## GUEST LECTURES

All students get to attend talks from Analytics experts and professionals who share their insights and perspective on careers and developments in Analytics.

# THE ATI ADVANTAGE

## HIGHLIGHTS OF CLASSROOM TRAINING



OVER 80000 HOURS OF CLASSROOM TRAINING CONDUCTED TO DATE

COMPREHENSIVE TRAINING PACKAGES FOR BOTH BEGINNERS AND ADVANCED PRACTITIONERS

METHODOLOGY COVERS TOOLS AND TECHNIQUES, WITH THE CORE FOCUS BEING ON APPLICATION

ANALYTICS 360 & 360+ INCORPORATES CASE STUDIES IN ANALYTICS BASED ON REAL DATA FROM ACROSS 18 INDUSTRIES



THREE FULLY EQUIPPED TRAINING CLASSROOMS

EXTENSIVE CASE STUDIES AND PRACTICE SESSIONS

EXPERIENCED TRAINERS WITH EXPERTISE IN SOLVING ACTUAL BUSINESS PROBLEMS USING ANALYTICS

INTERNSHIP OPPORTUNITIES IN DATA SCIENCE CONSULTING FOR STUDENTS WHO MEET ELIGIBILITY CRITERIA





# STUDENT SPEAK

WHAT SOME OF OUR STUDENTS HAD TO SAY ABOUT US

"The course was very useful and I learned more than what I expected. The concepts were made quite easy by the trainer. He made us understand the topics with brilliant examples. In all, the complete course was interactive and very useful.

**Deepali Sharma**

"ATI is a great institution for learning Analytics. The faculty members have good knowledge and experience and great care is taken by them to ensure the students understand the subject well and can deliver their best wherever they work on Analytics.

**Manish Sharma**

More reviews by our students on Google!



# ANALYTICS 360

## COURSE DETAILS

INR 33814 + 18% GST

TOOLS INCLUDED

MICROSOFT EXCEL (ADVANCED)

SQL

R (OPEN SOURCE TOOL)

TABLEAU

ANALYTICS (INCLUDES ARTIFICIAL  
INTELLIGENCE)

ADD ONS

LIFETIME ACCESS TO PRE  
RECORDED ANALYTICS SESSIONS

8 GUEST LECTURES AROUND  
ANALYTICS



# ANALYTICS 360 PLUS COURSE DETAILS

**INR 39492 + 18% GST**

## TOOLS INCLUDED

MICROSOFT EXCEL (ADVANCED)

SQL

R (OPEN SOURCE TOOL)

TABLEAU

PYTHON

ANALYTICS (INCLUDES ARTIFICIAL  
INTELLIGENCE)

DIGITAL ANALYTICS

## ADD ONS

**LIFETIME ACCESS TO PRE  
RECORDED ANALYTICS SESSIONS**

**8 GUEST LECTURES AROUND  
ANALYTICS**

# EXCEL MODULE OUTLINE

24 Hours

## **TOPICS**

- Dashboard Starts
- Pivot Tables
- Dynamic Charts
- Form Controls



## **LEARNING OUTCOME**

Creating dynamic dashboard reports and basic dashboards

- Introduction to Programming
- Introduction to VBA and Macros
- Introduction to Objects in Excel
- Writing a Macro



Basics of Programming Language

- Data Types
- Recording and Editing a Macro
- Loops - IF, FOR, WHILE, DO UNTIL



Write logic in Programming Language and automate work using Macros

# SQL MODULE OUTLINE

16 Hours

## TOPICS

- Overview
- What is SQL
- Why and Where is SQL used
- Importance of SQL Database Fundamentals
- What is a Database
- What are the different features in a Database (eg primary key, foreign key, candidate key...)

## LEARNING OUTCOME

Understanding of SQL framework and fundamentals

- What are the different relationships possible between 2 tables
- How to use SQL commands in Access
- Normalisation
- 1NF, 2NF..BCN
- Model a normalised database

Efficiently organise data

# SQL MODULE OUTLINE

16 Hours

## TOPICS

- How to create a table
- How to import data from Excel, text files
- How to check tables for consistency
- Functions
- Use of SELECT function
- Use of INSERT/UPDATE/DELETE function

## LEARNING OUTCOME

Data Preparation

- Use of GROUP BY option
- Use of COUNT option
- Use of WHERE option
- Mathematical Functions: AVG, SUM, MIN, MAX, FIRST, LAST
- Scalar Functions: UCASE, LCASE, MID, LEN, NOW, ROUND, FORMAT
- In Class project using Functions

Manipulate data efficiently with queries

# R MODULE OUTLINE

**16 Hours**

## **TOPICS**

- The R environment
- Using R Studio
- Vectors, matrices, lists and data frames
- Functions
- Installing packages
- Import/Export data

## **LEARNING OUTCOME**

Get familiar with the R environment;  
Carry out basic operations  
Learn how to use the programming  
structure in R

- Data Manipulation: Merging, Sorting, Filtering
- User defined functions

**Data Preparation**

# R MODULE OUTLINE

16 Hours

## TOPICS

- Conditional Functions
- Character Functions
- Handling missing values
- Cross tabs
- Loops
- User defined functions
- Case Studies

## LEARNING OUTCOME

Work on a real world problem  
independently  
Become an advanced user of R

# TABLEAU MODULE OUTLINE

16 Hours

## TOPICS

- Why visualise data?
- Different types of visualisations
- Features of a good visualisation



## LEARNING OUTCOME

Basics of Data Visualisation

- Overview of Tableau
- Installation process
- Tableau interface
- What is Tableau desktop, workbook, worksheets and their usage
- Tableau objects



Getting started with Tableau

- Connecting to Excel, CSV, text files
- Connecting to Databases
- Editing data connections and sources
- Data blending



Connecting to data

# TABLEAU MODULE OUTLINE

**16 Hours**

## **TOPICS**

- What are filters
- Ways to filter
- Using filters
- What is a parameter
- Using parameters
- Parameters with filters
- Sorting, Grouping and Drill Downs



## **LEARNING OUTCOME**

**Filters and Parameters**

- Tables and Text Tables
- Types of charts - bar, histogram, line, pie
- Scatter plots
- Circle plots



**Basic views in Tableau**

# TABLEAU MODULE OUTLINE

**16 Hours**

## **TOPICS**

- Maps based visualisation
- Geocoding
- Advanced charting - Area Charts, Dual Charts, Gantt Charts, Waterfall Charts
- Tree Maps
- Motion Charts
- Combination Charts

## **LEARNING OUTCOME**

Advanced views in Tableau

- How to customise visualisations using filters, pages, rows and column shelves
- Summary Card
- Header and axes
- Titles, captions, labels and legends

Customising views in Tableau

# TABLEAU MODULE OUTLINE

16 Hours

## TOPICS

- Types of calculation functions
- Table calculations
- Calculation syntax
- Level of Detail expressions
- Aggregate calculations
- Date calculations
- String calculations
- Logic calculations
- Statistics and forecasting

## LEARNING OUTCOME

Calculations in Tableau

- Calculated Fields, Functions and Parameters
- Calculated Fields - power to answer your difficult questions
- Calculated Field operators
- Numeric Functions (singular)
- Character Functions (Modify Items)
- Character Functions (Locate values in String)

Functions in Tableau

# TABLEAU MODULE OUTLINE

**16 Hours**

## **TOPICS**

- Date Functions
- Type Conversion Functions
- Logical Functions (If, Then, Else)
- Aggregate Functions
- Aggregate calculations
- Table calculation Functions
- Parameters and additional controls for analysis
- Advanced Mapping

## **LEARNING OUTCOME**

Functions in Tableau



- SQL Queries to retrieve data
- Data blending to use data from multiple sources in one view
- Extracts to accelerate your data exploration



Data Blending

# TABLEAU MODULE OUTLINE

**16 Hours**

## **TOPICS**

- Getting started with Dashboards and stories
- Building a Dashboard
- Dashboard layouts and formatting
- Interactive dashboards through actions
- Best practices for a dashboard
- Story points

## **LEARNING OUTCOME**

**Dashboards**



- Tableau Public
- Export images to other applications
- Export data to other applications or back to Tableau
- Print to PDF
- Packaged Workbooks
- Tableau Reader



**Deploy and Publish Workbooks**

# PYTHON MODULE OUTLINE

32 Hours

## TOPICS

- Origin and goals of Python
- Overview of Python Features
- Getting and installing Python
- Accessing Python Documentation
- Using it with other Programming Languages

## LEARNING OUTCOME

Introduction to Python

- Executing Python Programs from Command Lines
- Creating and executing Python Programs using IDLE
- Python Command Line Options
- Environment variables that influence Python
- Creating Python GUI applications
- Standalone vs Web Enabled Interfaces
- The Python Standard Library

Using Python

# PYTHON MODULE OUTLINE

## TOPICS

- Pythons Lexical Analyser
- Using WhiteSpace to Structure Programs
- Identifiers and Keywords
- Pythons Execution Model
- Naming Objects and Binding
- Python's Data Model
- Immutable and Mutable Objects
- Data Types
- Variables, Expressions and Statements

32 Hours

## LEARNING OUTCOME

Language Fundamentals

- IF/ELSE/ELIF Statements
- Creating loops
- Loop Modification
- Understanding Iterators
- Returning Values with Return Statements
- Returning Generator Iterators with Yield Statement
- Retrieving Iterators with next ()

Conditional Programming

# PYTHON MODULE OUTLINE

## TOPICS

- Exception Handling
- Types of Python Exceptions
- Handling exceptions with try/except/finally
- Triggering exceptions with raise
- Defining New Exception Types
- Implementing Exception Handling in Functions, Methods and Classes
- Working with the Regular Expression Error Exception

32 Hours

## LEARNING OUTCOME

.....► Exception Handling

- Using ASCII and Unicode Strings
- Manipulating Strings with String Methods
- Using the format () function to Format Strings
- Using Escape Sequences
- Working with Raw Strings

.....► Handling Strings

# PYTHON MODULE OUTLINE

32 Hours

## TOPICS

- Sequenced Data Structures
- Arrays
- Collections
- Dictionaries
- Creating and Accessing Lists
- Manipulating Lists
- Understanding the difference between List and Tuples
- Using dictionaries to create data records
- Manipulating dictionaries
- Creating and performing set operations
- Differences between sets and dictionaries
- Using Generators to return Iterators

## LEARNING OUTCOME



Arrays, Collections and Dictionaries

# PYTHON MODULE OUTLINE

## TOPICS

- Defining and calling Functions
- Creating Anonymous Functions
- Altering Function Functionality with Decorator Functions
- Creating Classes with the Class Statement
- Creating Objects as Class Instances
- Using pre-existing Classes as the basis of a new class
- Using modules to Group Related Functions, Classes & Variables
- Locking and Importing Modules
- Using packages to group modules together
- Passing arguments to functions by reference and by value
- Defining functions with required arguments
- Defining functions with default arguments

32 Hours

## LEARNING OUTCOME

.....► Functions and Arguments

# PYTHON MODULE OUTLINE

32 Hours

## TOPICS

- Sending Output using the `print()` method
- Reading Input with the `input()` method
- Creating File Objects with the `open()` method
- Controlling File Access Modes
- Working with File Object Attributes
- Closing File Objects with the `close()` method
- Reading and Writing to File Objects with `read()` and `write()`
- Using File Processing Functions from the OS Module

## LEARNING OUTCOME

I/O Handling

# PYTHON MODULE OUTLINE

32 Hours

## TOPICS

- Regular Expression Syntax
  - Using Regular Expressions in Python
  - Altering Regular Expression
- Processing with Regular Expression  
Modifiers
- Using Regular Expression Operators
  - Scanning through Strings using the search() and match() methods
  - Creating reusable patterns by using the compile() method

## LEARNING OUTCOME

Regular Expressions

- Python Packages

# BASE ANALYTICS

48 Hours

## TOPICS

### OVERVIEW OF ANALYTICS

- Scales of Data Measurement



- Categorising data

- Descriptive Statistics



- Summarise and describe data

- Probability Distribution and Sampling



- Probability Distributions and how to sample data

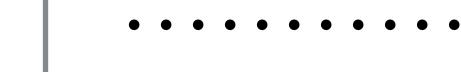
### HYPOTHESIS TESTING

- Parametric Tests



- One Sample T-Test, Two Sample T-Test and Anova to prove/disprove business assumptions, based on data

- Non Parametric Tests



- Goodness of fit tests, Test of Association and Independence to prove/disprove business assumptions, based on data

# BASE ANALYTICS

48 Hours

## TOPICS

### CORRELATION

- Karl Pearson's and Spearman's Correlation

## LEARNING OUTCOME

- Identify business relations

### HYPOTHESIS TESTING

- Cluster Analysis

- Group data, form clusters that contain objects similar to each other in a group as compared to those in other clusters

- Factor Analysis

- Identify few underlying factors from a large set initial set of observed variables

# BASE ANALYTICS

48 Hours

## TOPICS

### PREDICTIVE MODELLING

- Linear Regression



## LEARNING OUTCOME

- Build a linear regression model, validate it and deploy the model on test data.
- Work on a wide range of case studies across various domains using this technique

- Logistic Regression



- Make the right predictions by building, evaluating and deploying accurate logistic regression models

# ADVANCED ANALYTICS

48 Hours

## TOPICS

### FORECASTING

- Time Series

### TEXT MINING

- Text Analytics

## LEARNING OUTCOME

- .....►
- Goodness of Fit tests, Test of Association/Independence to prove/disprove business assumptions, based on data

### ARTIFICIAL INTELLIGENCE (using Machine Learning)

- Association Analysis/Market Basket Analysis
- SVM
- GBM and Adaptive Boosting
- Cross Validation and Parameter Tuning
- Neural Networks
- Naive Bayes (Application in Document Classification)

- Advanced Classification Algorithms which builds Artificial Intelligence

# DIGITAL ANALYTICS

24 Hours



## TOPICS

### Introduction to the Audience Tab

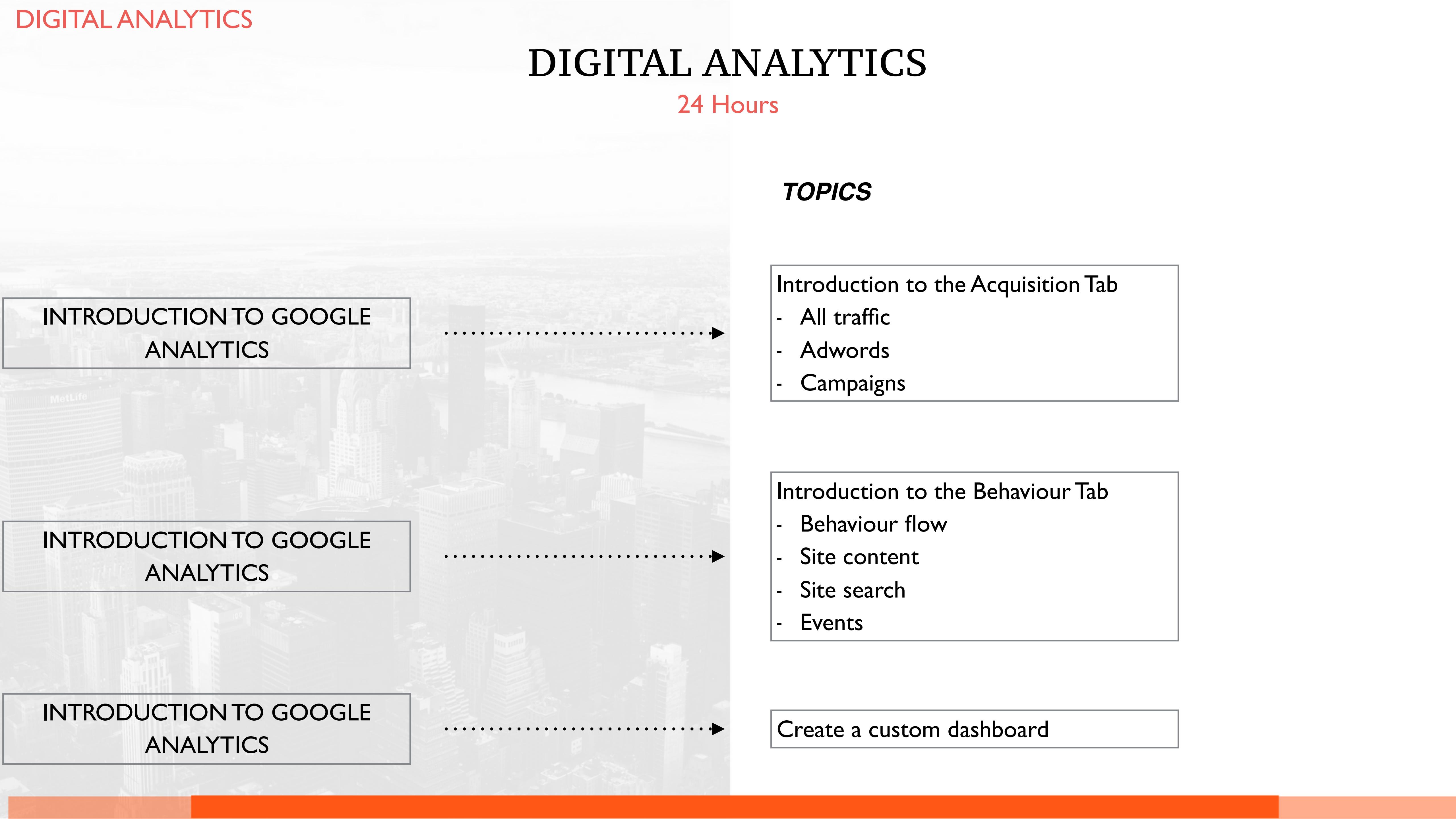
- User explorer
- Demographics
- Interests
- Geography
- Behaviour
- Benchmarking

### Measuring Success

- Setting up Goals

# DIGITAL ANALYTICS

24 Hours



INTRODUCTION TO GOOGLE  
ANALYTICS

INTRODUCTION TO GOOGLE  
ANALYTICS

INTRODUCTION TO GOOGLE  
ANALYTICS

## TOPICS

### Introduction to the Acquisition Tab

- All traffic
- Adwords
- Campaigns

### Introduction to the Behaviour Tab

- Behaviour flow
- Site content
- Site search
- Events

Create a custom dashboard

# DIGITAL ANALYTICS

24 Hours

## TOPICS

- Setting up a Google search only campaign
- Set up goal tracking
- Monitoring the campaign
- Optimising the campaign
- Other types of adword campaigns, display ads, remarketing, dynamic display ads, targeting and placements

CREATING A LEAD GENERATION CAMPAIGN USING A SEARCH ONLY GOOGLE ADWORDS CAMPAIGN

CREATING A LEAD GENERATION CAMPAIGN USING FACEBOOK ADMANAGER

- Setting up the ad campaign
- Monitoring the campaign
- Optimising the campaign
- Other types of ad campaigns that can be run



# GET IN TOUCH

HAVE ANY QUESTIONS OR WANT TO FIND OUT  
MORE ABOUT US?

call us at +91 72 5988 6432

mail us at [admin@redwoodassociates.in](mailto:admin@redwoodassociates.in)



# THANKS!

ANALYTICS TRAINING INSTITUTE IS A LEARNING INITIATIVE OF REDWOOD ALGORITHMS  
([www.redwoodalgorithms.com](http://www.redwoodalgorithms.com))