

# BACP

Business Analytics  
Certificate Program



## Module 1: Introduction to Analytics

Welcome and Orientation	Welcome to the Program	Orientation (Structure of the program)	Analytics Landscape	Assessment 1
			Industry Session	
Linear Programming with Excel	Introduction to Linear Programming	Sensitivity Analysis	Mentoring Session - 1	Assessment 2
Data Scientist Toolbox – R	Introduction to R	Getting and Cleaning Data using R	Mentoring Session - 2	Self Study
Playing with Data	Project Brief (Twitter Data)	Project Submission	Project Debrief	Mentoring Session - 3

## Module 2: Fundamentals of Business Statistics

Descriptive Statistics	Overview of the Course and Problem 2 - Brief (Continue with Twitter Data)	Presentation of Data	Measures of Central Tendency and Variation	Correlation
				Industry Session
Inferential Statistics	Basic Probability Concepts	Probability Distribution	Mentoring Session - 1	Self Study
Estimation and Hypothesis Testing	Estimation	Hypothesis Testing	Mentoring Session - 2	Self Study
Playing With Data	Project Brief - Healthcare Problem	Project Submission	Project Debrief	Mentoring Session - 3



## Module 3: Advanced Statistics

Regression	Overview of the Course and Problem 3 - Brief (Continue Healthcare Data)	Introduction to Regression	Simple Linear Regression	Industry Session
			Multiple Linear Regression	Self Study
ANOVA	Purpose of ANOVA	Assumptions of ANOVA	One way ANOVA	Mentoring Session - 1
			Two way ANOVA	Self Study
Factor Analysis and Principal Component Analysis	Factor Analysis	Dimension Reduction Problems	Which to Use When	Mentoring Session - 2
	Principal Component Method			Self Study
Playing with Data	Project Brief - Marketing Problem	Project Submission	Project Debrief	Mentoring Session - 3

## Module 4: Data Mining

Data Mining Using Decision Trees	Overview of the Course and Problem 4 - Brief (Continue with Marketing Problem)	Unsupervised Learning: Clustering	Unsupervised Association Rules	Industry Session
Classification Algorithm - Decision Trees	Decision Tree	CART	Random Forest	Mentoring Session - 1
		CHAID		Self Study
Classification Algorithm - Discriminant Analysis	Linear Discriminant Analysis	Quadratic Discriminant Analysis	SVM	Mentoring Session - 2
			K Nodes Classification	Self Study
Playing With Data	Project Brief - Finance Problem	Project Submission	Project Debrief	Mentoring Session - 3

## Module 5: Predictive Modelling

<b>Neural Networks</b>	Overview of the Course and Problem Brief 5 (Finance Problem)	Introduction to NN Basic Structure	Application of NN Industry Session	Self Study
<b>Linear and Non Linear Regression</b>	Predictive Continuous Response	Non Linear Regression 1 Non Linear Regression 2	Non Linear Regression 3 Mentoring Session - 1	Self Study
<b>Model Comparison and Further Improvement</b>	Machine Learning Techniques	Gradient Boosting Machine Model Validation	Model Comparison and Further Improvement	Mentoring Session - 2 Self Study
<b>Playing with Data</b>	Project Brief - Supply Chain Problem	Project Submission	Project Debrief	Mentoring Session - 3

## Module 6: Forecasting Techniques

<b>Time Series Analysis</b>	Overview of the Course and Problem Brief 6 (Continue Supply Chain)	Time Series Analysis Components of Time Series	Winter Holt Model	Industry Session Self Study
<b>ETS Models</b>	Exponential Smoothing Techniques	Exponential Moving Average	Forecasting Constructing an ETS Model	Mentoring Session - 1 Self Study
<b>Advanced Techniques</b>	Stationarity	Estimating AIRMA	Cointegration Structured Break Collinearity	Mentoring Session - 2 Self Study
<b>Playing With Data</b>	Project Brief - Macro Problem	Project Submission	Project Debrief	Mentoring Session - 3



## Module 7: Data Visualization in Tableau

Essential Design Principles for Tableau	Getting Started with Effective and Ineffective Visuals	Design Best Practices & Exploratory Analysis	Industry Session	Self Study
Creating Visualization with Tableau	Getting started and Charting	Mapping	Mentoring Session - 1	Self Study
Telling Stories with Tableau	Key Metrics Indicators and Decision Triggers	Dashboard and Storytelling with Data	Mentoring Session - 2	Self Study
Playing With Data	Project Brief	Project Submission	Project Debrief	Mentoring Session - 3

## Module 8: Introduction to Big Data

Big Data: Why and Where	Big Data Era	Applications: What Makes Big Data Valuable	Industry Session	Self Study
Getting Started with Hadoop	Introduction to Hadoop Ecosystem	Map Reduce	Mentoring Session - 1	Self Study
Getting Started with R Spark	Programming with Spark	Mentoring Session - 2	Self Study	
Playing with Data	Project Brief	Project Submission	Project Debrief	Mentoring Session - 3