Data Science for Professionals – A Series

This Series is exclusively designed for Professionals, who are not Data Scientists but need to make use of Data Science to solve everyday challenges.

This Series is hosted in 3-hour sessions, each containing 2 x 1.5-hour lessons.

Although Sessions contain stand-alone topics, which can be done separately, we recommend doing the sessions as a Series (not compulsory).

Total Series Hours: 18

Dates

Session 1: Introduction to Predictive analytics with Use Cases
Session 2: Predictive Analytics – Unsupervised Learning (Clustering & PCA)
Session 3: Predictive Analytics – Supervised Learning (Multiple Linear/Non-Linear Regression)
Session 4: Predictive Analytics – Supervised Learning (Regression Trees)
Session 5: Predictive Analytics – Supervised Learning (Classification Trees)
Session 6: Predictive Analytics - Supervised Learning (Time Series – Neural Networks) & Model Deployment

Session 1: Introduction to Predictive analytics with Use Cases

Prerequisite

None

Objectives

Using industry focused data, introduce delegates to:

- asking Analytical Questions from Data
- aligning Analytical & Data Questions to Business Objectives

Description

These sessions are designed to give students an Introductory Overview of Predictive Analytics, it's methodologies and how these are applied in Industry today.

Outcome

Delegates will leave the sessions with an excellent theoretical and practical understanding of Predictive Analytics techniques and applying these in an operational and business context.

Program

10:00am – 11:30am	1.	Predictive Analytics at a glance
		1.1 What are Predictive Analytics and Data Mining?
		1.2 Asking the right questions from data
11:30am – 12:00pm	Break	
12:00pm – 13:30pm		1.3 how are Predictive analytics and data mining used?
		1.4 Use Case Overview
	2.	Analytical Questions & Business Alignment

Session 2: Predictive Analytics–Unsupervised Learning (Clustering & PCA)

Prerequisite

Session 1

Objectives

Using industry focused data, introduce delegates to:

- methods related to unsupervised learning, where dependent variables are not known/used

Description

These sessions explore the incredibly rich world of Predictive analytics & data mining. Too often, we have huge data resources but make little use of that data. Data mining enables one to tap into this wealth of data and derive useful, actionable insights that can be used to drive decision making in your business.

Outcome

Delegates will leave these sessions with an excellent understanding of Predictive Analytics & Data Mining Techniques and how they are applied across operational environments to solve complex problems with large data sets.

Program

10:00am – 11:30am	1.	Some Use Cases
11:30am – 12:00pm	Break	
12:00pm – 13:30pm	2.	Unsupervised learning
	2.1	Overview of Unsupervised Learning Techniques
	2.2	Cluster analysis
	2.3	Principal Components Analysis

Session 3: Predictive Analytics – Supervised Learning (Multiple Linear/Non-Linear Regression)

Prerequisite

Session 1

Objectives

Using industry focused data, introduce delegates to:

- methods related to supervised learning, where the dependent variables are known
- multiple linear regression and the techniques of stepwise regression
- Predictive non-linear regression techniques
- predictive modelling using regression techniques

Description

This session will enable delegates to undertake analyses that seek to establish relations between variables, using multiple linear/non-linear regression. These are essential building blocks to understand the incredibly powerful more Predictive Analytics Techniques. They also explore the incredibly rich world of Predictive analytics & data mining. Too often, we have huge data resources but make little use of that data. These techniques enable one to tap into this wealth of data and derive useful, actionable insights which can be used to drive decision making in your business.

Outcome

Delegates will leave these sessions with an excellent understanding of Advanced Analytics Techniques and how they are applied across operational environments to solve complex problems with large data sets.

Program

10:00am – 11:30am	1.	Supervised Learning – Regression (Correlational models using continuous predictors)
	1.1	Objective and applications
	1.2	Multiple linear regression
	1.3	Forward stepwise regression
11:30am – 12:00pm	Break	
12:00pm – 13:30pm	1.4	Backward stepwise regression
	1.5	Example Workspaces

1.5.1 Multiple Linear Regression
1.5.2 Multiple Non-Linear Regression

Session 4: Predictive Analytics –Supervised Learning (Regression Trees)

Prerequisite

Session 1

Objectives

Using industry focused data, introduce delegates to:

- methods related to supervised learning, where the dependent variables are known
- Regression Trees

Description

This session helps delegates explore the incredibly rich world of Predictive analytics. Too often, we have huge data resources but make little use of that data. These techniques enable one to tap into this wealth of data and derive useful, actionable insights which can be used to drive decision making in your business.

Outcome

Delegates will leave these sessions with an excellent understanding of Predictive Analytics Techniques and how they are applied across operational environments to solve complex problems with large data sets

Program

10:00am – 11:30am 1. Supervised Learning – Regression Trees
1.1 Simple C&RT Techniques
1.2 CHAID Trees
11:30am – 12:00pm Break
12:00pm – 13:30pm
1.3 Boosted Trees
1.4 Random Forests
1.5 Neural Networks Trees

Session 5: Predictive Analytics –Supervised Learning (Classification Trees)

Prerequisite

Session 1

Objectives

Using industry focused data, introduce delegates to:

- methods related to supervised learning, where the dependent variables are known
- Classification Trees

Description

This session helps delegates explore the incredibly rich world of Predictive analytics. Too often, we have huge data resources but make little use of that data. These techniques enable one to tap into this wealth of data and derive useful, actionable insights which can be used to drive decision making in your business.

Outcome

Delegates will leave these sessions with an excellent understanding of Predictive Analytics Techniques and how they are applied across operational environments to solve complex problems with large data sets

Program

10:00am – 11:30am 1. Supervised Learning – Classification Trees
1.1 Simple C&RT Techniques
1.2 CHAID Trees
11:30am – 12:00pm Break
12:00pm – 13:30pm
1.3 Boosted Trees

1.4 Random Forests
1.5 Neural Networks Trees

Session 6: Predictive Analytics - Supervised Learning (Time Series – Neural Networks) & Model Deployment

Prerequisite

Session 1

Objectives

Using industry focused data, introduce delegates to:

- methods related to supervised learning, where the dependent variables are known
- Neural Networks for Time Series Analysis
- Deploying Models into Production

Description

This session helps delegates explore the incredibly rich world of Predictive analytics. Too often, we have huge data resources but make little use of that data. These techniques enable one to tap into this wealth of data and derive useful, actionable insights which can be used to drive decision making in your business.

Outcome

Delegates will leave these sessions with an excellent understanding of Predictive Analytics Techniques and how they are applied across operational environments to solve complex problems with large data sets.

Program

10:00am – 11:30am 1. Supervised Learning
1.1 Neural Network Models
1.1.1 Time Series Analytics

11:30am – 12:00pm Break

12:00pm – 13:30pm 2. Implementing a Workspace and putting a Model into Production
2.1 Connecting Data & Sampling
2.2 Model Building & Validation
2.3 Selecting a Champion
2.4 Deployment into Production