

SGA07_DATASCI CURRICULUM

Week	Module	Key Learning Areas	Learning Outcome	
1	Introduction to Data Science	What is Data Science	Understand the fundamentals of the profession, the tools and how to get data	
		Who is a Data Scientist		
		The Data Science Methodology		
		Project Brief		
2	ToolBox	Getting started with R		
		Getting started with Python		
		Overview of IBM Watson Studio		
		Overview of AWS ML Platform		
3	Gist: Recap & Functional Programming			
4	Data Structure & Sources	Scale of Measurements		
		Databases (Relational & NoSQL)		
		Web & Mobile Crawling		
		Social Media		
		Field Research Methods		
5	Exploratory Data Analysis	Statistics 101		Develop first intuition into using data to solve either business or technical problems
		Understanding Attributes		
		Understanding Relationships		
		Understanding Data through Graphs		
6	Feature Engineering	Split-Apply-Combine Strategy		
		Data Cleaning		
		Data Integration & Reduction		
		Data Discretisation		
		Data Transformation		
7	Mining Algorithm: Regression	Statistical Inference		
		Linear Regression		
		Multivariate Linear Regression		
		Logistic Regression		
8	Gist: Developing APIs			
9	Mining Algorithm: Decision Tree	Concept Learning	Deep dive into mathematics underlying to help build a conceptual framework for building solutions	
		Attribute Selection Measures		
		Decision Tree Induction & Pruning		
10	Mining Algorithm: Naive Bayes	Review of Probability		
		Baye’s Theorem		
		Naive Bayes Classifier		
		Beyond Naive Bayes		
11	Mining Algorithm: Neural Network	Defining Network Topology		
		Training a Neural Network		
		Deep Learning Applications		
12	Gist: Cloud Computing			
13	Time Series Analysis	Smoothing Techniques	Explore practical areas in which solutions can be become applicable to real-life scenarios	
		Extracting Seasonal Components		
		Forecasting Financial Data		
14	Natural Language Processing	Regex		
		Text Classification		
		Sentiment Analysis		
		Get started with IBM Watson Assistant		
15	Data Security	Understanding Cybersecurity		
		Overview of Cryptography		
		AI & Security		
16	Gist: IoT Engineering			