

DATA SCIENCE FOR BUSINESS**24-hour course****Dr. Martine GEORGE**

Martine GEORGE holds a PhD in Physics and AI from ULB and an MBA from Edinburgh. She has 30 years of professional experience, including 15 years developing business analytics teams within large organizations from different industries, including ING and BNPP Fortis.

She is Professor of Management Practice at Solvay Brussels School. Passionate about developing talent and organizations in business analytics, she is also ICF Professional Certified Coach, facilitator & trainer.

Course Outline

Today, businesses, governments, and individuals create massive collections of data as a by-product of their activity. Increasingly, decision-makers and systems rely on intelligent technology to analyze data systematically to improve decision-making. In many cases automating analytical and decision-making processes is necessary because of the volume of data and the speed with which new data are generated.

In this course, we will examine how data analysis technologies can be used to improve decision-making. We will study the fundamental principles and techniques of data science, and we will examine real-world examples and cases to place data science techniques in context, to develop data-analytic thinking, and to illustrate that proper application is as much an art as it is a science.

Data Science for Business is a course intended for those who need to understand data science and those who want to develop their skill at data-analytic thinking. This course is not about algorithms. Instead it presents a set of fundamental principles for extracting useful knowledge from data. These fundamental principles are the foundations for many algorithms and techniques for data science, but also underlie the processes and methods for approaching business problems data-analytically, evaluating particular data science solutions, and evaluating general data science plans.

The class meetings will be a combination of lectures on the fundamental material, discussions of business applications of the ideas and techniques, guest lectures from practitioners, case discussions, data analysis workshops and exercises.

At the end of the 24h-courses, the students will be able to:

- Discuss data science intelligently with data scientists and with other stakeholders,
- Better understand proposals for data science projects and data science investments,
- Participate integrally in data science projects.

Course Structure

Session	General theme	Subjects
1 (18/01)	Course Overview / Data Analytics thinking	- Introduction - Data science, AI, Machine Learning, Big Data? Business applications: Predicting customer churn
2 (20/01)	Data Science Process / Data Exploration	- Different data science tasks - Data Science process, - Data Exploration Business applications: Answering business questions with data science tasks
3 (25/01)	Predictive Analytics	- Predictive modeling, classification, regression Classroom Workshop: Predictive Analytics Practice
4 (27/01)	Performance & Evaluation	What's a good model? - Fitting, Overfitting, - Confusion Matrix, Lift Business application: Direct Marketing Campaigns Classroom Workshop: Evaluate A Proposal for an Analytics Project
5 (01/02)	Descriptive Analytics	- Unsupervised methods - Associations Analysis - Clustering Classroom Workshop: Descriptive Analytics Practice
6 (03/02)	Text Mining	Guest Speaker I - Text Mining concepts, principles and applications Classroom Workshop: Text Mining Practice

7 (08/02)	The Analytical Advantage	- Competing on Analytics, data-driven maturity, DELTA model, management challenges of big data, jobs in analytics - Towards Data-Driven Marketing in a Digital Transformation Guest Speaker II
8 (22/02)	Capstone Project Group Presentations and Q&A.	- Q&A - Conclusions