



# MSc Data Analytics for Business

## Modules

### Multidisciplinary Studies and Practice (20 credit points)

This module aims to develop your understanding of working in a range of different disciplines, and the implications of this upon your studies and practices. You will work in multidisciplinary teams on a live consultancy project, developing your skills in areas such as; team working, time management, communication, consultancy, project management, problem-solving, creativity and critical thinking.

### Fundamentals of Big Data and its Infrastructure (20 credit points)

Traditional data management and analysis techniques are no longer adequate for analysing the vast collection of data. It is therefore essential businesses are equipped, both in terms of the business infrastructure and appropriately skilled workforce, to capture, transform and analyse this data to produce useful information, or business intelligence, that enhances the business in some tangible way (e.g. improving the value chain, enhancing customer service, solving business problems).

This module introduces you to the processes, techniques and technologies businesses use to develop their infrastructure so that they are able to manage big data and transform it into useful business intelligence. A number of key challenges faced by companies exploiting big data will also be raised.

### Practical Machine Learning Methods for Data Mining (20 credit points)

The digital revolution has made data easy to digitally capture and inexpensive to store. The rate at which data is being stored is growing at a phenomenal rate with databases typically doubling in size every 20 months. For example, 2.3 Trillion GB of data is created per day with IBM expecting 43 Trillion GB (40 Zetta bytes) of data to be created by 2020. As a result, traditional data management and analysis techniques are no longer adequate for analysing this vast collection of data leading to an exponential demand (912% increase) for professionals with expertise in managing and analysing big data sets.

This module therefore aims to facilitate you to develop the core knowledge and skills of a Data Analyst and Data Scientist. You will be exposed to a number of so called 'machine learning' techniques that are able to automatically discover useful patterns in data. An intensely practical approach to teaching machine learning is adopted using data mining software packages such as WEKA or SAS. The practical emphasis will help you to develop an intuitive grasp of the sophisticated mathematical ideas that underpin this challenging but fascinating subject.

**Statistical approaches to data analysis (20 credit points)**

This module provides students with an introduction to the statistical principles and statistical methods required for the analysis of large datasets. The module introduces R programming language and its applications for initial exploration and visualisation of data and for predictive modelling. This module includes hands-on labs to familiarize students with the concepts taught.

**Marketing and Value Creation (20 credit points)**

This module will expose students to a broad range of themes and issues relevant to an informed understanding of the nature and characteristics of markets and how consumers behave. In particular, it will encourage students to engage in a critical evaluation of the ways in which organisations can seek to build and maintain an appropriate customer value proposition that offers a sustainable competitive advantage. This is no easy task because consumers are now increasingly sophisticated, aware of their rights and options and are more demanding than ever. Thus, if marketers are to succeed they must work hard, not just to satisfy, but to exceed customer needs.

The module will focus on the following themes:-

- › A re-evaluation of the marketing concept and the central importance of customer satisfaction to the organisation.
- › Exploring the impact of the marketing environment on the organisation's marketing and value-adding activities.
- › The role of the marketing planning process in delivering customer value.
- › An exploration of key themes: value, value adding activities, value-to-the-consumer, value-to-the-organisation, value chains and value networks.
- › A critical evaluation of the barriers to delivering value and potential solutions.

**Managing and Leading Strategic Change (20 credit points)**

Strategy is about the big issues in business, making tough decisions and sometimes taking risks; leading people through difficult and often uncomfortable changes. The extent, pace, and scale of changes with which businesses have to cope have grown significantly in recent years. Anticipating and responding to change with appropriate strategic choices is a major challenge of modern management. Effective leadership can help to bring people with you and ensure their help and support. The module will focus on the following themes:-

- › Strategic thinking and the strategy development process
- › Tools of strategic analysis
- › Evolution of an organisation's strategy as a response to environmental change
- › The strategic planning process, Strategic value creation
- › Aspects of leadership and motivation; Leadership styles
- › Leading change and change management.