



QUEEN'S  
UNIVERSITY  
BELFAST

MANAGEMENT  
SCHOOL

# MSc BUSINESS ANALYTICS

TO PROGRESS  
AND LEAD

RUSSELL  
GROUP

# WELCOME TO QUEEN'S MANAGEMENT SCHOOL



## WE EDUCATE LEADERS WHO MAKE A DIFFERENCE IN THE WORLD

Queen's Management School is one of the top business schools in the UK and Ireland and prides itself on a range of world-class postgraduate degree programmes in Accounting, Economics, Finance, Management, Human Resource Management and Marketing.

## WHY CHOOSE QUEEN'S MANAGEMENT SCHOOL?

Among the best in the world, Accounting and Finance is ranked 8th in the UK (Complete University Guide 2019) and is joint 1st in the UK for career prospects (Guardian University Guide 2019).

In the Research Excellence Framework (REF 2014), we are ranked joint 8th in the UK for Research Intensity, with 70% of our research deemed to be world leading or internationally excellent.

## PURPOSE-BUILT FOR MANAGEMENT

Queen's Management School at Riddel Hall is in the Stranmillis Conservation Area close to the main University campus. The site encompasses a contemporary hi-tech Management School, and Postgraduate and Executive Education Centre with conference facilities.

Riddel Hall provides the School with academic and support offices; postgraduate research rooms for students and research fellows; a range of fully equipped teaching facilities with varying capacities from small syndicate rooms to a 120-seat tiered lecture theatre; two computer suites; the Trading Room; the Placement Office; resource accommodation; flexible space for large group teaching and conference use; and communal support facilities including catering accommodation to encourage social and intellectual interaction.

## DIVERSITY

We have a diverse student body from around the world including, UK, Northern Ireland, China, Taiwan, Kazakhstan, Malaysia, India, Mauritius, Ecuador, Brazil, Canada, Vietnam, US, Nepal, Guyana, Pakistan, Azerbaijan, Ukraine, India, Norway, Bangladesh, Sri Lanka, Denmark, France, Germany, Italy and Romania.



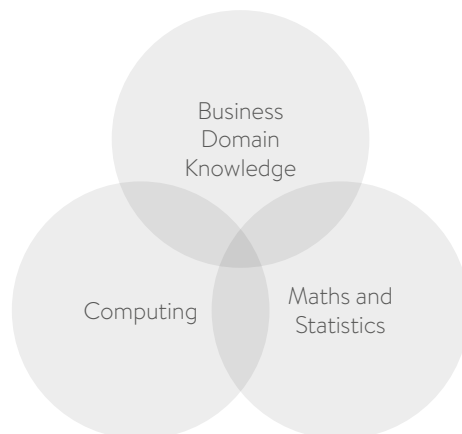
# WHY CHOOSE THE MSc BUSINESS ANALYTICS?

The increasing volume, variety, and velocity of data creates opportunities for businesses to improve decision-making and develop new data-driven products and services. The MSc Business Analytics has been developed to meet the demand for qualified professionals, who possess the necessary expertise to realise end-to-end business analytics solutions and are equipped to utilise data for business decision-making purposes.

The programme is built around three core areas: business knowledge, statistics, and computing.

The programme includes modules focusing on the application of analytics in core business functions, such as marketing and human resources. There are also modules focusing on the development and application of technical skills, such as advanced analytics and machine learning, data management, and data-driven decision-making. Students will also learn to apply statistical techniques to solve business problems.

Pre-course induction gives training in key statistics and computer skills to ensure students from a range of backgrounds have the necessary skills to take the course.



adapted from Drew Conway's venn diagram at: <http://drewconway.com/zia/2013/3/26/the-data-science-venn-diagram>



## STUDENT EXPERIENCE

Learn how to use state-of the-art, industry standard software over the duration of the programme. This includes software such as R, SAS, KNIME, and Tableau.

## INDUSTRY LINKS

Developed by staff with industry and academic backgrounds, the course is tailored towards the key skills required to succeed in a business analytics role.

## CAREER DEVELOPMENT

Industry reports show a global shortage for data scientists. Students will learn to use cutting-edge and industry standard tools and techniques to enable career development.

## WORLD-CLASS FACILITIES

The MSc Business Analytics is taught in the landscaped setting of Riddel Hall which features world-class facilities, including a dedicated computer lab with the latest analytics software.

# COURSE STRUCTURE

Designed to bring together key analytics skills alongside core business knowledge, to deliver graduates with a holistic understanding of how data can be used in a business setting. Technical and business elements deliver a balanced approach to Business Analytics.

## Semester 1

Statistics for Business  
Data Management  
Human Resources Analytics  
Operations Management

## Semester 2

Artificial Intelligence in Business and Society  
Advanced Analytics and Machine Learning  
Data-driven Decision-making  
Marketing Analytics

## Semester 3

Dissertation

## Entry Requirements

Normally a 2.1 Honours degree or equivalent qualification acceptable to the University in any discipline to include one module in a quantitative area. Relevant employment experience in a quantitative area may be considered in lieu of a module in a quantitative area and will be considered on a case-by-case basis.

\*This could be a course or module in an area such as Finance, Mathematics, Statistics, Economics, or Physics

## International Students

For information on international qualification equivalents, please check the specific information for your country.

## English Language Requirements

Evidence of an IELTS\* score of 6.5, with not less than 5.5 in any component, or an equivalent qualification acceptable to the University is required.

\*Taken within the last 2 years.

## Duration

1 year (full-time)

## Places available

Unrestricted

## Teaching Times

Morning / Afternoon



## Fees

Northern Ireland (NI)	£6,500
England, Scotland or Wales (GB)	£6,500
Other (non-UK) EU	£6,500
International	£19,200

For fees and funding information please see  
Fees: [qub.ac.uk/TuitionFees](http://qub.ac.uk/TuitionFees)  
Funding: [go.qub.ac.uk/pgfunding](http://go.qub.ac.uk/pgfunding)

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**MSC BUSINESS  
ANALYTICS IS A NEW  
PROGRAMME WITH TWO  
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# SKILLS DEVELOPMENT

Machine Learning

Statistics

Digital Literacy

Data Science

Business Intelligence

Data Visualisation

Data Management

Analytics

Tableau

Decision-making

Teamwork

Networking

Problem-solving

Specialist Software

SAS

KNIME

## INTERVIEW WITH THE PROGRAMME DIRECTOR

### 1. Why has Queen's Management School introduced the MSc Business Analytics to their suite of business programmes?

The introduction of the MSc Business Analytics programme is driven by industry demand for graduates with skills in business analytics. The increase in the volume, variety, and velocity of data produced has created opportunities for improved business decision-making, as well as the development of data-driven products and processes. The increasing automation of tasks across multiple industries has created opportunities for graduates with the analytics skills needed to drive innovation in business. It is important that students capitalise on both the increasing demand for analytics skills as well as the opportunities this creates for businesses.

Graduates learn key skills to succeed in a world of big data and automation. The programme focuses on core business analytics skills in the areas of statistics, computing and business. Business analytics has also emerged as a field of research amongst management scholars, adding to the richness of the course and opportunities for graduates to pursue a research career.

### 2. What makes Queen's Management School particularly well-equipped to deliver this unique course?

The Management School has multidisciplinary expertise core areas of business analytics, and the programme is a natural fit with other programmes offered by the School.

The School also has close links to industry. The technical components of the course will be delivered in the School's dedicated computer lab, which has industry leading analytics software.

### 3. What are the key skills students will gain from this course?

Business analytics professionals require skills in three areas: computing, statistics, and business. The programme gives students these skills. From a statistical perspective, students learn key concepts using the R programming language. From a computing perspective, business analytics broadly encompasses three linked areas: data storage and management, data analytics and machine learning, and a user interface. The computing elements of the programme have been developed to provide students with skills across these three areas. Students gain experience using the latest data visualisation and analytics tools, and gain practical experience in data management and storage.

The course puts analytics theory, tools and techniques into the context of business problems. Students therefore study modules on the use of analytics in core business functions such as human resource analytics, and marketing analytics. The AI in Business and Society module focuses on the strategic role AI plays in business, and the wider impact of AI on society.

#### 4. How will completing this MSc programme improve the graduate's employability?

Most top companies have realised the benefit of business analytics. Some prominent success stories include Netflix movie recommendations, LinkedIn's 'people you may know' feature, and Amazon's product recommendations. More generally, analytics is now used in a range of areas such as fraud detection, predicting machine failure, recommender systems, and insurance pricing, as well as more advanced examples such as self-driving cars and chatbots. Graduates gain key skills to succeed as a business analytics professional. There is a global shortage of professionals with analytics skills and graduates from this course are highly employable.

#### 5. What career opportunities do you expect graduates from this course to have?

Graduates have a range of rewarding employment choices. These include business analytics, data science, informatics, and consultancy. Analytics is a growing area across most industries and business functions, and graduates seek opportunities in a range of areas. The programme provides graduates with key analytics tools and techniques, as well as domain knowledge in areas such as marketing analytics and human resource analytics.

#### 6. Are students without a strong technical background suitable for this programme?

Yes, however students should be passionate about analytics for business and the public sector, to drive insight, decision-making, as well as product and process innovation.

The programme covers introductory statistical and technical topics before moving on to more advanced analytics topics. It includes an induction to introductory statistics and computing knowledge required by the course. The programme will appeal to graduates from outside maths and computer science.

#### 7. How is the MSc Business Analytics at Queen's Management School different to other analytics related courses offered by other institutions?

The course has been designed for students passionate about business analytics, who studied an undergraduate degree in a different area. The MSc Business Analytics programme at Queen's Management School provides graduates outside of maths and computer science with the opportunity to gain skills needed to move into the business analytics area.

In contrast to other courses which can focus more on the statistical and computing side of analytics, the MSc Business Analytics focuses on the application of analytics in business. Statistical and computing skills develop alongside core business skills, creating the well-rounded skill set needed to succeed in a business analytics role.



ACCORDING TO IBM  
**2.5 BILLION GIGABYTES** OF DATA IS PRODUCED DAILY, WITH 90% OF THE WORLD'S DATA PRODUCED WITHIN THE PAST TWO YEARS.

(www.ibm.com)



CAPGEMINI ESTIMATE THAT THE VOLUME OF DATA PRODUCED WILL **INCREASE 20,000 FOLD** BETWEEN 2000 AND 2020

(Financial Times)



**DATA SCIENTIST** IS RATED AS THE BEST JOB IN AMERICA

(www.glassdoor.com)



DEMAND FOR TECHNICAL SKILLS WILL RISE BY **55%** BY 2030

(McKinsey Report)



BIG DATA ANALYTICS IS ESTIMATED TO BE WORTH AN **AVERAGE BENEFIT OF £40BN** PER YEAR TO THE UK ECONOMY BETWEEN 2015 AND 2020

(CEBR, 2016)



MCKINSEY GLOBAL INSTITUTE ESTIMATES THE **SHORTFALL OF DATA SCIENTISTS** COULD BE AS HIGH AS 250,000 IN THE SHORT TERM

(Jacques Bughin, James Manyika, 2016)



A US REPORT ESTIMATES A **364,000 INCREASE** IN POSITIONS IN THE US BY 2020

(Miller and Hughes, 2017)



AN ESTIMATED **160% INCREASE** IN BIG DATA POSITIONS BETWEEN 2013 AND 2020

(SAS and the Tech Partnership, 2014)



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### Dr Byron Graham

Programme Director

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Dr Graham has a background in industry and academia and specialises in helping businesses benefit from effective use of data for decision-making and new products and processes.

He has worked as a specialist in healthcare informatics for a major healthcare trust, as a data science consultant for a Big Four firm and in multiple sectors including healthcare, legal industry, financial services, and retail.

His currently researches the application of machine learning and other data science approaches to business problems.

### Queen's Management School

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The MSc Business Analytics programme is for graduates who want to work at the cutting-edge of the industry. Developed to bridge analytics and business, the course covers the most up-to-date core business and analytics topics. Students graduate with technical, statistical and business skills to succeed as an analytics professional.