

Year 1

# Data Science (Graduate Apprenticeship) BSc - 4 Years

UTBSCDATSC1F-11B-18

Year 1    Year 2    Year 3    Year 4

## GUIDANCE FOR STUDENT:

Before selecting your optional courses, please ensure you have met your Personal Tutor.

Please note that all Year 1 and Year 2 students will also be expected to undertake two 10 week work-based professional practice sessions during the summer periods at the end of the year - 'Work-Based Professional Practice A' in Year 1, and 'Work-Based Professional Practice B' in Year 2. Both courses will be assessed in Year 3.

## Compulsory courses

You must take these courses

|  |   |  |  |
|--|---|--|--|
| Informatics 1 - Introduction to Computation<br>INFR08025                      20 credits | Introduction to Linear Algebra<br>MATH08057                      20 credits | Informatics 1 - Object-Oriented Programming<br>INFR08014                      10 credits | Informatics 1 - Data and Analysis<br>INFR08015                      10 credits |
| Proofs and Problem Solving<br>MATH08059                      20 credits                  | Calculus and its Applications<br>MATH08058                      20 credits  |  |  |

## Course options

### Group A

Select exactly 20 credits in this group.

Fundamentals of Algebra and Calculus

Select between 0 and 20 credits of the following courses

#### GUIDANCE FOR STUDENT:

Students that don't have at least a B pass in Advanced Higher Mathematics (or equivalent) are strongly advised to take this course option - Fundamentals of Algebra and Calculus MATH07003.

Fundamentals of Algebra and Calculus  
MATH07003                      20 credits

AND

Level 7 and 8 courses in Schedules A to Q, T and W

Select between 0 and 20 credits from **Level 7 and 8 courses in Schedules A to Q, T and W**

= 120

Year 2

# Data Science (Graduate Apprenticeship) BSc - 4 Years

UTBSCDATSC1F-21A-18

Year 1    Year 2    Year 3    Year 4

## GUIDANCE FOR STUDENT:

Please note that all Year 1 and Year 2 students will also be expected to undertake two 10 week work-based professional practice sessions during the summer periods at the end of the year - 'Work-Based Professional Practice A' in Year 1, and 'Work-Based Professional Practice B' in Year 2. Both courses will be assessed in Year 3.

## Compulsory courses

You must take these courses

|  |  |  |   |
|--|--|--|---|
| Informatics 2A - Processing<br>Formal and Natural Languages<br>INFR08008      20 credits | Several Variable Calculus and<br>Differential Equations<br>MATH08063      20 credits | Probability<br>MATH08066      10 credits         | Informatics 2C - Introduction to<br>Software Engineering<br>INFR08019      10 credits |
| Informatics 2B - Algorithms, Data<br>Structures, Learning<br>INFR08009      20 credits   | Informatics 2D - Reasoning and<br>Agents<br>INFR08010      20 credits                | Statistics (Year 2)<br>MATH08051      10 credits | Computing and Numerics<br>MATH08065      10 credits                                   |

= 120

Year 3

# Data Science (Graduate Apprenticeship) BSc - 4 Years

UTBSCDATSC1F-31A-18

Year 1   Year 2   Year 3   Year 4

## Compulsory courses

You must take these courses

|                                |                                       |                           |                                |
|--------------------------------|---------------------------------------|---------------------------|--------------------------------|
| Algorithms and Data Structures | Introductory Applied Machine Learning | Statistical Methodology   | Honours Differential Equations |
| INFR10052      10 credits      | INFR10069      20 credits             | MATH10095      10 credits | MATH10066      20 credits      |

work Based  
A      20 credit

work Based  
B      40 credit

= 120.

Year 4

# Data Science (Graduate Apprenticeship) BSc - 4 Years

UTBSCDATSC1F-41A-18

Year 1   Year 2   Year 3   Year 4

## Compulsory courses

You must take these courses

|  |            |   |            |   |            |                                      |            |
|--|------------|---|------------|---|------------|--------------------------------------|------------|
| Machine Learning Practical<br>INFR11132  | 20 credits | Machine Learning and Pattern Recognition<br>INFR11130 | 20 credits | Multivariate Data Analysis<br>MATH10064 | 10 credits | Statistical Consultancy<br>MATH10092 | 10 credits |
| Data Mining and Exploration<br>INFR11007 | 10 credits |   |            |   |            |                                      |            |

## Course options

### Group A

Select exactly 10 credits in this group.

#### Algorithmic Foundations of Data Science

Select between 0 and 10 credits of the following courses

|  |            |
|--|------------|
| Algorithmic Foundations of Data Science<br>INFR11156 | 10 credits |
|--|------------|

OR

#### Fundamentals of Operational Research

Select between 0 and 10 credits of the following courses

|   |            |
|---|------------|
| Fundamentals of Operational Research<br>MATH10065 | 10 credits |
|---|------------|

AND

### Group B

Select exactly 40 credits in this group.

#### Graduate Apprenticeship Honours Projects

Select exactly 40 credits of the following courses

|  |            |  |            |
|--|------------|--|------------|
| Honours Project (Informatics)<br>INFR10044 | 40 credits | Project in Mathematics (Double)<br>MATH10031 | 40 credits |
|--|------------|--|------------|