Programme Specification

BSc (Hons) Data Science Degree Apprenticeship

School:	Science, Technology and Health
Subject area:	Science, Technology, Engineering and Mathematics
Entry from academic year:	2020-21
in the month(s) of:	September and April
Awarding institution:	York St John University
Teaching institution:	York St John University
Delivery location:	York St John University York campus London campus
Programme/s accredited by:	Not applicable
Exit awards:	Certificate of Higher Education Data Scientist Diploma of Higher Education Data Scientist BSc (Ord) Data Scientist
UCAS code / GTTR / other:	G130
Joint Honours combinations:	Not applicable
QAA subject benchmark statement(s):	Mathematics, Statistics & Operational Research (2015) Computing (Consultation) (2015) Biosciences (2015) Physics, Astronomy & Astrophysics (2017) Quality Assuring Higher Education in Apprenticeships
Mode/s of study:	Non-standard period of study as follows: • Full-time for 3.5 including the integrated End-point Assessment
Language of study:	English
Paired with foundation year	No
Study abroad opportunities:	No
Placement year opportunity:	No

Introduction and special features

Introduction

We now live in 'The Era of Mathematics'. Data analysis and mathematical modelling are everywhere: they underpin virtually all applications in the Sciences, the Arts & Humanities and Social Sciences, from industrial processes to personalised medicine, smart cities and fake news. There is a serious skills shortage of mathematical and data scientists, but also a mathematical skills gap in other fields. Applications such as the above highlight the importance of data science underpinning other disciplines. The mathematical scientists of the 21st century will work and communicate in interdisciplinary contexts in order to address the challenges of our time. The world requires 21st century mathematics to create 21st century technologies, and from smart cities to personalised medicine, data science will lie at the heart of every major innovation.

York St John: trailblazing programmes fit for the 21st century

York St John has brought the Mathematical Sciences into the 21st century. We have designed a new syllabus from scratch that significantly streamlines and modernises the standard curriculum and deeply embeds digital literacy and work-related skills. Providing you with a coherent, rigorous foundation and a

wide range of versatile, reproducible tools in data science that can be applied in the workplace is at the heart of this degree apprenticeship programme. This programme is vocationally targeted yet intellectually stimulating and challenges you to reach your full potential and to do your best work. It provides a comprehensive and robust framework that is relevant in our modern age and puts applications, problem-solving and digital literacy at the forefront. Acknowledging the key role of complexity in organisations and systems that data science seeks to understand, modelling approaches are treated on the same footing as statistical methods, as are giving you a thorough grounding in computer science and communication. These tools will underpin your work in the company through teaching you data science approaches to address problems and suggest ways to effect change. The broad range of techniques you will encounter will further contribute to knowledge exchange by upskilling the company work force more generally, for instance by suggesting the use of novel tools, which can be embedded in and enhance company practice.

This degree apprenticeship programme will develop your analytical and computational skills in an integrated way alongside other skills that are essential in the modern world and workplace such as communication and interdisciplinarity. We will motivate and develop mathematical techniques through data science challenges of real-world phenomena. Closing the loop, you will be able to apply these concepts and results 'hands-on' in concrete, often interdisciplinary, data science applications using analytical as well as computational approaches in student-centred, active-learning classes. The range of applications will reflect and highlight the wide range of employers and career opportunities.

Systematically developing your abilities to apply knowledge, work with others and communicate your analysis to both specialists and non-specialists is a main priority of this innovative programme of study and integral part of the multi-disciplinary occupational standard of data scientists. Throughout your studies you will foster your understanding of the material and the relevance of the acquired skills by reflecting on it and applying it in the workplace. You will explore content 'hands-on' through active learning and creative problem-solving, often exploiting powerful computational tools, that you can immediately apply on the job. You will have specific dedicated training in computing, creative problem-solving, communication and data analysis, which will ideally equip apprentices in a broad range of careers.

Interdisciplinarity is deeply embedded in the curriculum. This deep integration familiarises you with different disciplinary knowledge and modes of working e.g. across the wide range of employers or mixed-experience cohorts, and practises productive interdisciplinary collaborations. Communication and independent written work are also deeply embedded in the assessments, moving away from predominantly exam-based recall of knowledge and mirroring the requirements of the 21st century workplace. You will learn about science communication as a social science, with the psychological and sociological phenomena underpinning communication and its reception in society. Communication is a tool that can be used and mis-used, and we will discuss ethically responsible use of data and inferential arguments through rigorous, robust and reproducible reasoning. The programme has a level 5 module on a work-based project working on a data science project from your company. It will let you apply knowledge gained by this point (e.g. in statistics, communication, complex systems or modelling) to a real work problem within your company, which will also relate to your end-point assessment report.

Data Science at YSJ

Data Science graduates at York St John will have a thorough theoretical and practical grounding at the intersection of computer science, statistics, mathematical modelling and communication. They will be extremely well-rounded multi-disciplinary workers and communicators, interfacing with computer scientists, statisticians, clients, mathematical modellers, software engineers, communication professionals and organisational managers. You will have a solid foundation with an excellent breadth of career opportunities and upon which to acquire further specialist knowledge. You will have a broad experience with computer scientists, mathematicians and communicators and other interdisciplinary influences. Bespoke communication training and activities will train you to effectively communicate with a wide range of specialist and non-specialist people as a multi-disciplinary interface. You will have a thorough understanding of data and models, their scope and limitations, and be able to design, question and communicate these to a wide range of audiences. You will learn cutting-edge Bayesian model selection

and evaluation techniques, and mathematical and computational techniques for working with big data e.g. through data bases, efficient algorithms, machine learning and artificial intelligence. You will have the intellectual space to focus on your studies in block-teaching weeks whilst being able to apply what you have learned immediately in real-work contexts. You will learn with and from peer groups in similar situations and potentially learn from individuals with different areas of specialisation within data science either through peers or employer master classes. Your well-rounded education will upskill you, allowing you to make novel and unique contributions to your team and employer, and building a solid foundation for a broad variety of potential career paths.

Summary of key features:

- A breadth of knowledge at the intersection of mathematics, computer science and communication.
- A thorough understanding and practice in modelling, statistics and computation for creative and collaborative problem-solving.
- Deeply embedded interdisciplinarity.
- Extensive theory and practice in communication, visualisation and story-telling.
- The role of mathematical modelling and data in society.
- Toolbox with broad range of techniques that can be applied in the workplace.
- Robust and ethical reasoning and use of data.
- Awareness of power and limitations of approaches, avoiding artefacts and faulty conclusions.
- Applications and work-based learning, acquiring powerful new techniques underpinning novel applications in your workplace.
- An involvement in substantial individual and group projects.
- Integrated professional practice opportunities.
- Guest speakers and master classes from industry to contextualise the academic work.
- An approach blending face-to-face teaching with independent and online learning.
- A student-centred, active-learning pedagogical approach.
- A diverse range of assessments that focus on real-work skills and activities.
- Team working opportunities throughout which mirror industry practice.
- A deep understanding of data and statistical inference, and of the power, biases and limitations of quantitative reasoning approaches.

Admissions criteria

You must meet the University's general entry criteria for undergraduate study. In addition:

- Your employer sets the entry requirements, which are typically three A levels including a B in Mathematics or equivalent professional experience.

If your first language is not English, you need to take an IELTS test or an equivalent qualification accepted by the University (see https://www.yorksj.ac.uk/international/how-to-apply/english-language-requirements/).

If you do not have traditional qualifications, you may be eligible for entry on the basis of Accredited Prior (Experiential) Learning (APL/APEL). We also consider applications for entry with advanced standing.

Programme aim(s)

This programme aims to produce graduates that

- Act as multidisciplinary interfaces between a wide range of colleagues and stakeholders, with excellent analytical, quantitative, computational and communication skills.
- Are independent learners that can acquire new techniques and tools for addressing real-work problems in the workplace and disseminate these techniques to colleagues and their analyses to stakeholders and employers.
- Are critically aware of the power of data in our society for use and misuse, and of predictive power, biases and limitations of statistical inference techniques.
- Are champions for ethical use of data, software and knowledge and advocates of rigorous, robust and reproducible reasoning.

The programme is intended to:

- Provide an ambitious, rigorous and stimulating programme of study in data science for student apprentices from diverse cultural, industrial and educational backgrounds, with embedded small group activities and vocational skills, which complements and rigorously underpins work-based learning.
- Develop subject knowledge, understanding and skills in the core areas of Mathematics (e.g. statistics, complex systems and modelling), Computer Science and Communication as defined in the curriculum in accordance with the Subject Benchmark Statement and the occupational standard, with tools that can be applied immediately in the workplace.
- Develop analytical, ethical and evidence-driven reasoning skills leading to rigorous and reproducible analyses that can inform decisions in the workplace.
- Provide a supportive and structured environment in which you are encouraged to develop the independent study skills required for lifelong learning, creative problem-solving, entrepreneurship and continued professional development.
- Provide opportunities to develop communication and team working skills that enable you to contribute your data science knowledge and abilities in a wide range of interdisciplinary and applied contexts in class and in the workplace.
- Develop deep digital literacy skills for data processing and analysis, problem-solving, visualisation and communication with the opportunity for upskilling colleagues and teams through transformative knowledge exchange.
- Provide the technical, intellectual, creative and investigative skills and knowledge required to be able to anticipate, adapt and innovate, contributing to the future development and application of data science and mathematical modelling in the company and throughout society.

Programme learning outcomes

Upon successful completion of the programme students will be able to:

Level 4

4.1 Explain and apply basic techniques in Analysis, Algebra and Statistics to solve seen and unseen problems, and to present, evaluate and interpret qualitative and quantitative data in class or in the workplace.

4.2 Analyse and construct data science-related arguments logically, carefully identifying assumptions, scope and limitations.

4.3 Use appropriate resources and tools to identify and select appropriate sources of information in order to create logically structured introductory content e.g. for essays, bibliographies, reports, posters and presentations.

4.4 Apply basic psychological and sociological principles of the science of communication and cognition to communicating data science content to specialist and non-specialist audiences using a range of media, and identify ethical challenges concerning data and communication.

4.5 Individually and collaboratively programme in appropriate languages to solve problems in class or in the workplace, and select an appropriate set of software and collaborative editing tools to explain and visualise the analysis.

4.6 Select an appropriate range of skills gained in different disciplinary contexts in order to address, solve and communicate interdisciplinary questions collaboratively in class or in the workplace.

4.7 Identify and reflect upon the key Knowledge, Skills and Behaviours (KSBs) that you have developed in relation to the degree apprenticeship standard.

4.8 Monitor and build an evidence-base of the KSBs appropriate to the stage of your apprenticeship completion.

Level 5

5.1 Explain and apply intermediate core techniques in mathematics, statistics and computer science to collect and manage data, to model real scenarios and to predict properties, future evolution and leverage points.

5.2 Differentiate between different paradigms for data modelling and select appropriate ones based on the nature of the study system, clearly identifying assumptions and limitations of the approach.

5.3 Manage data-driven research projects by identifying logical steps and milestones, and combining independent study with group work.

5.4 Effectively communicate across multi-disciplinary interfaces connecting computer science, mathematical modelling, statistics, communication, non-specialists and management, e.g. with team members in class and in the workplace, managers or clients.

5.5 Effectively programme using an appropriate choice of languages, software packages and programming libraries in order to solve problems in data handling, mathematical modelling and spatial visualisation.

5.6 Integrate knowledge across mathematics, statistics, computer science and communication, also incorporating other people's disciplinary expertise, in order to tackle interdisciplinary problems in class or real-work contexts.

5.7 Identify, analyse and reflect upon the key Knowledge, Skills and Behaviours (KSBs) that you have developed in relation to the degree apprenticeship standard.

5.8 Critically assess how the portfolio evidence base of your personal development activities relates to the KSBs appropriate to the stage your apprenticeship completion; identify gaps, and prioritise and plan personal development targets for successful ongoing achievement.

Level 6

6.1 Explain, apply and critically evaluate advanced data science topics and concepts, e.g. in inference, information and visualisation.

6.2 Critically evaluate inferential arguments from different sources and perform rigorous, robust and reproducible mathematical and computational analyses both in class and in the workplace.

6.3 Conduct independent research on advanced topics, organising and managing your own time effectively, and using appropriate sources of information and support.

6.4 Communicate advanced ideas and analyses in data science both in writing and orally to multi-disciplinary audiences.

6.5 Identify or implement appropriate programming and software tools to analyse big data applications both in class and in the workplace.

6.6 Apply and integrate your knowledge to make connections in a wider context in order to address multi-disciplinary challenges and to communicate your analysis to a range of stakeholders.

6.7 Identify, critically evaluate, reflect upon and discuss the key Knowledge, Skills and Behaviours (KSBs) that you have developed in relation to the degree apprenticeship.

6.8 Conduct a successful professional discussion to successfully evidence, and reflect critically upon, the occupational standard relevant to your apprenticeship through the application of KSBs in the work environment.

Programme structure

Code	Level	Year	Title	Credits	Module status	
					compulsory or optional to take **C or O**	non-compensatable or compensatable **NC or X**
DSC4002M	4	1	Linear Algebra – Degree Apprenticeship	20	C	NC
DSC4001M	4	1	Programming - Degree Apprenticeship	20	C	NC
DSC4004M	4	1	Practice in Interdisciplinary Problem Solving – Degree Apprenticeship	20	C	NC
DSC4005M	4	1	Analysis and Optimisation – Degree Apprenticeship	20	C	NC
DSC4003M	4	1	Probability, Statistics and Data Analysis – Degree Apprenticeship	20	C	NC
DSC4006M	4	2	Communication – Degree Apprenticeship	20	C	NC
DSC5003M	5	2	Modelling and Numerical Analysis – Degree Apprenticeship	20	C	NC
DSC5001M	5	2	Databases – Degree Apprenticeship	20	C	NC
DSC5007M	5	2	Applied Machine Learning – Degree Apprenticeship	15	C	NC
DSC5004M	5	2	Object-oriented Programming – Degree Apprenticeship	20	C	NC
DSC5006M	5	3	Work-based Project – Degree Apprenticeship	30	C	NC
DSC5005M	5	3	Graphs, Networks and Systems – Degree Apprenticeship	15	C	NC
DSC6001M	6	3	Advanced Data Applications – Degree Apprenticeship	20	C	NC
DSC6003M	6	3	Artificial Intelligence – Degree Apprenticeship	20	C	NC
DSC6002M	6	3	Data Visualisation – Degree Apprenticeship	20	C	NC
DSC6004M	6	4	End-point Assessment 1 – Degree Apprenticeship	5	C	NC
DSC6005M	6	4	End-point Assessment 5 – Degree Apprenticeship	55	C	NC

Learning, teaching and assessment

Foundations: Level 4 develops your understanding of the core data science areas of probability, statistics & data analysis, computer programming and communication. Modules in algebra, analysis and statistics will bridge the gap between school and university mathematics and underpin later advanced topics in data analysis, statistics and artificial intelligence. You will gain valuable skills in creative problem solving and science communication in an interdisciplinary setting, learning and applying knowledge in mixed groups. This interdisciplinary exposure will teach you to see problems from different disciplinary perspectives and to communicate your insights to specialists outside your field. This provides essential preparation for your future position as an interface connecting multiple disciplines.

Applications: Level 5 builds upon the multidisciplinary foundations in computer science, mathematics and communication laid at level 4. You will develop your ability to mathematically model and simulate diverse phenomena and systems in the world around you, both analytically and via computer simulations. Your

computational skills will be extensively developed towards advanced programming and data handling techniques, using databases and object-oriented programming. You will get the opportunity to integrate different data science topics, tools and techniques in the context of the work-based project to investigate a real work data science project within your company, which also helps prepare you for the end-point assessment. This substantial individual research project allows you to accentuate your skills portfolio and develop your interests in different directions. This project is an extended piece of research and writing that shows your individuality, independence, creativity and communication skills.

New directions: Level 6 gets you to an advanced level of mathematical and computational sophistication and specialisation, with a portfolio of skills. The first half of level 6 consists of advanced data science topics such as artificial intelligence, data visualisation and big data applications. The other half of level 6 consists of the end-point assessment. This in turn consists of a knowledge test, a report and a professional discussion. These address the knowledge, skills and behaviours set out in the occupational standard. You will continuously build an evidence-base for these via ePortfolios and reflections throughout your programme. The conclusion of the end-point assessment constitutes the completion of the academic BSc as well as the apprenticeship.

Delivery: Our approach to teaching and learning enables you to become practitioners of your discipline through a process of active learning or 'learning by doing'. The course relies heavily on interactive or practical laboratory sessions to achieve active learning, enabling you to deepen your understanding and put theory into practice, both in class, and by giving you tools for the workplace. This approach is intentionally adopted to support you in developing the ways of thinking and practising that are common in data science. Classroom-based sessions in four block-teaching weeks per year (plus additional introductory teaching sessions and skills assessments at the start of the programme (September) and a week for exams) combine practical aspects with a forum to teach and discuss the underpinning theory. These classroom sessions utilise a range of student-centred active learning techniques, from presenting an interpretation of complex ideas, through interactive discussions, to demonstrations of practice and problem-solving workshops. These block-teaching weeks will typically be in September/November (depending on the year of study), January, May and June, with exams in August or Easter, depending on the cohort entry. These block-teaching weeks will give you the intellectual freedom, stimulation and concentration to work on the content intensively. Interspersed between these teaching weeks will be online activities, for which you can manage your time more freely to suit your and your employer's needs. These tasks are designed to continue engaging you with the material, to integrate it into your body of working knowledge, and to prepare for the next teaching block:

A blended approach is taken on this programme, with specific pedagogies underpinning face-to-face teaching and online learning. You are provided and required to engage with preparatory material made available through the Virtual Learning Environment (VLE) Moodle before each block teaching week and reflect on ePortolios built using Mahara. This enables staff to use the classroom time most effectively to enable you to explore concepts in more depth through a range of interactive hands-on approaches, including discussion with staff and peers, exploration of authentic case studies, and individual and group problem solving. This class time reflects the need for direction and support in acquiring the knowledge and skills within the discipline, whilst the hands-on approaches used have been chosen to avoid simple transmission of knowledge and enable you to build your own understanding of the course content. A convenient shorthand to refer to this philosophy is SCALE-UP: Student-Centred Active Learning Environment with Upside-down Pedagogies.

You are very much in the driving seat and in charge of your own education. You will take responsibility for your own learning and need to thoroughly prepare the transmissive material ahead of the face-to-face teaching in order to make the best use of contact time with staff and fellow student apprentices. You will have a dedicated member of staff, your academic tutor, who will guide you on your learning journey. They are aware of your individual learning needs, work with you to help address any gaps and support you to reach your full potential. They can guide you to explore alternative ways of thinking about something and direct your reading in beneficial areas that might complement or deepen your understanding of a topic. You

will also be involved in peer assessment to help you see things from a different perspective and mark according to given criteria, and rework drafts in order to appreciate that often projects are works in progress, and that we learn the most through editing and incorporating other people's feedback. In that spirit you will also be involved in the co-creation of assessment criteria, where we discuss and computationally model different assessment scenarios.

The face-to-face teaching is complemented by various online activities that occur between blocks and support continuous learning such as webinars; online group work; recorded lectures, guest lectures and industry masterclasses; tutorial talks; multiple choice tests; concomitant portfolio building and reflection for both the end-point assessment and each individual module; submission of written work and creative artefacts; and private study on preparatory reading for the next block. Your studies will further be supported by an academic tutor, a work-based mentor and a dedicated relationship manager:

Key people: As student apprentices you will have the following regular points of contact, who work together to tie the learning to concrete applications. On top of your usual line manager/team leader, there will be an academic tutor/supervisor from YSJ and a work-based mentor (WBM). You are supervised academically by academic staff and as regards work and the apprenticeship process by a company-based mentor. This tripartite relationship between the University, yourself and company will be managed by a university facilitator:

Academic tutor
On the University side, you will be supported by an academic tutor, in addition to your module lecturers. It is the responsibility of the academic tutor to meet with you at regular intervals to check engagement, academic progress and standards, and to ensure that support is being provided by the work-based mentor. Tutorial meetings will also address individual learning needs based on the initial skills assessment and those emerging over the course of the apprenticeship. Tutors will highlight the student responsibility for learning and have access to Learning Analytics as a measure of student engagement that can provide the basis for discussion with and intervention by the work-based mentor or line manager.

Work-based mentor
On the employer side, you will be supported by a work-based mentor. As part of the YSJ provision, your WBM will receive developmental training in coaching and mentoring and how to facilitate action learning sets. Work-based mentors will also be invited to a series of events & briefings throughout the 36-month duration of the programme. This is to ensure that they are in a good position to support you throughout the apprenticeship, particularly in relation to assessments and the EPA. They will also discuss with you your activities and development needs as regards to fostering the Knowledge, Skills and Behaviours from the Data Scientist occupational standard, which you are documenting and reflecting on by building a set of ePortfolios. In particular, each module has a portfolio reflection component that lets you tie the module learning to concrete applications in your workplace.

Tripartite relationship management
The relationship between you, your employer and the university will be managed by a dedicated member of staff at York St John who will be your universal port of call. This person is responsible for ensuring that you, your organisation and your work-based mentor are well-informed and supported throughout the duration of the apprenticeship.

Assessment: Deliberate use is made of a wide range of assessment mechanisms, many of which more closely reflect what you are required to do in employment in data science (e.g. software development, reflective analysis, technical reports, group working, presentations). Practical coursework forms a large proportion of the assessments, as this allows you to demonstrate the selection, synthesis and application of relevant theory, which aligns with the first three learning outcomes at each level, 4.1/5.1/6.1, 4.2/5.2/6.2 and 4.3/5.3/6.3. Group assessments are used in a number of modules, as team working is key in scientific and industry professions and is a vital employability skill, which aligns with the programme learning outcome 4.4/5.4/6.4 and 4.6/5.6/6.6. Written examinations are used to check data science knowledge in

applications (PLOs 4.1/5.1/6.1 and 4.2/5.2/6.2) and practical exams test the capability of implementing computer code to solve mathematical problems (PLOs 4.5/5.5/6.5). All modules have a reflection based on an ePortfolio addressing the knowledge, skills and behaviours (4.7/5.7/6.7 and 4.8/5.8), and most also contain a written work, poster, blog or presentation component, which examines both the analytical and communication learning outcomes 4.3/5.3/6.3 and 4.5/5.5/6.5.

Varied forms of assessment suit different learners and we want to be as inclusive as possible, with a focus on applying the knowledge. We set out to broaden the range of assessments away from the traditional exam models, to initially have several assessments per module and to spread out assessments so that they are not all concentrated at the same time. There is progression to single pieces of modular assessment towards the end of the programme, reflecting your increasing independence and time management. You will also frequently get detailed feedback on formative activities for learning and you will have the opportunity to give us feedback in various ways such as Mentimeter.

Progression and graduation requirements

The University's general regulations for undergraduate awards apply to this programme.

Any modules that must be passed for progression or award are indicated in the Programme Structure section as non-compensatable.

In addition, the following programme-specific regulations apply in respect of progression and graduation:

- Module DSC6004M must be passed before students can progress onto module DSC6005M.
- The integrated nature and duration of the degree apprenticeship imply that per year 100 credits (five 20 credit modules) will be covered instead of the usual 120 at each level 4, 5 and 6. This means that one level 4 module will be taught in the 2nd year and two level 5 modules in the 3rd year i.e. you will conditionally progress onto the level 5/6 modules whilst not yet knowing the outcome of the outstanding level 4/5 assessments. If you were not to pass these modules you might find out very late that you have failed and are at risk of being terminated. This risk will be very clearly communicated to employers, work-based mentors and yourself at contracting stage (as well as in this document) and will also be pointed out periodically.

End-point Assessment (EPA)
The end-point assessment is delivered and assessed across 2 modules. It is carried out by an Independent Assessor and consists of the following three components as set out in the occupational standard:

- A knowledge test
- A written report
- A professional discussion

The knowledge test consists of 30 multiple choice questions from a data bank, covering data science specific knowledge. Module content and on-the-job-learning help prepare you for the knowledge test. This report is based on the work-based project, and addresses the knowledge, skills and behaviours (KSB) for a data scientist as set out in the degree standard in the context of the project. The discussion is based on a "portfolio" on work projects that you will collate over the duration of the degree apprenticeship and which also addresses the knowledge, skills and behaviours for a data scientist.

All assessments must be successfully completed within a 6-month period after the EPA gateway:

EPA Gateway
The EPA should only start once your employer is satisfied that you are consistently working at or above the level set out in the occupational standard, that the pre-requisite gateway requirements for EPA have been met and that they can be demonstrated to the EPA organisation (EPAO). The employer, in conference with the EPAO, needs to ensure that you have:

- Met all the KSBs in the standard and passed all the Degree Modules
- Completed a work-based project (to inform the Report) that consists of 30 credits

- Completed a portfolio (to inform the Professional Discussion)
- Achieved Level 2 English and Maths. For those with an education, health and care (EHC) plan or a legacy statement, the English and Maths minimum requirement is Entry Level 3. British Sign Language qualifications are an alternative to English qualifications where this is your primary language

For the purposes of your university degree classification, the marks for these three components will be numerical, determined according to a YSJ mark scheme which is itself based on the degree standard mark scheme. Subsequently these numerical marks will be converted into Fail, Pass, Merit or Distinction for the purposes of your apprenticeship classification, for which the performance in the Knowledge Test will be graded Fail or Pass, and the Report and Professional Discussion will be graded as Fail, Pass or Distinction. These grades will be combined to determine the overall apprenticeship grade of Fail, Pass, Merit or Distinction, as detailed in the degree standard. Following the completion of the Knowledge Test, Report and Professional Discussion the Independent Assessor will make the final judgement and grading. Resits/retakes are governed by the policy set out in the standard. Successful completion of the EPA will result in the achievement of the apprenticeship standard and a Bachelor's Degree in Data Science.

Internal and external reference points

This programme specification was formulated with reference to:

- University Mission Statement [see page two]
- Strategic Plan 2015-20 [see page four]
- QAA subject benchmark statements
- Frameworks for Higher Education Qualifications
- Bond report: knowledge exchange in the mathematical sciences https://epsrc.ukri.org/newsevents/pubs/era-of-maths
- Blackett review: computational modelling, technological futures https://www.gov.uk/government/publications/computational-modelling-blackett-review
- Government industrial strategy https://www.gov.uk/government/topical-events/the-uks-industrial-strategy
- Government environmental strategy https://www.gov.uk/government/publications/25-year-environment-plan
- Occupational degree standard https://www.instituteforapprenticeships.org/ apprenticeship-standards/data-scientist-degree/
- Institute of Mathematics and its Applications employability statement https://ima.org.uk/3186/ima-employability-statement/
- Institute of Mathematics and its Applications accreditation statement https://ima.org.uk/university-degree-programme-accreditation/

Date written / revised:03/07/19
Programme originally approved: 03/07/19