Programme Specification

MSc Data Science

MSc Data Science with Professional Experience

School:	London
Subject area:	Computer Science
Entry from academic year:	2024-15
in the month(s) of	September and February
Awarding institution:	York St John University
Teaching institution:	York St John University
Delivery location:	YSJU London
Programme/s accredited by:	Not applicable
Exit awards:	Postgraduate Certificate in Data Science Postgraduate Diploma in Data Science
UCAS code / GTTR / other:	Not applicable
Joint Honours combinations:	Not applicable
QAA subject benchmark statement(s):	Subject Benchmark Statement for Computing (March 2022) Master's Degree Characteristics (February 2020)
Mode/s of study:	Full time (12 months) Full time with professional experience* (24 months) Part time (24 months) [1] Part time with professional experience* (36 months) ***NB**. The Professional Experience element provides a 12 month window of opportunity for completion for full time, and 24 months for the part time programme. A minimum of 9 months professional experience activity is required. Standard Postgraduate periods of study[1] for full time/part time apply
Language of study:	English
Paired with Foundation Year	No
Study abroad opportunities:	No
Opt-in YSJU Placement Year opportunity:	No

Introduction and Special Features

This programme combines fundamentals and cutting-edge principles, theories and practices within the fields data science and applied analytics. As a student on MSc Data Science, you will be equipped with knowledge of Big Data (BD) management, Predictive Modelling (PM) using Machine Learning (ML) / statistical methods, and model validation and evaluation. You will develop expertise knowledge of analytical project requirements, data acquisition and visualisation, and business communication / presentation. This programme is correlated to an interdisciplinary field that uses scientific method and algorithms to extract data and apply the collected information in a wide range of application domains that can be used across data mining, ML, BD, etc.

[1] All part-time routes suspended for 2024-25

MSc Data Science is designed for students from computing or numerate disciplines wishing to pursue careers within the data science field. This programme develops hands on practical experience in data science, business intelligence and analytics using industrial standard tools. You will address and access the latest research and IT trends, with the curriculum designed in an accessible and inclusive manner to support widening application in software and the IT industry. Application of knowledge is key to employment. Seminars from various industrial organisations will form a part of the programme delivery.

You will engage in hybridised learning via a mixture of lectures, small group seminars and pre-recorded online content. The focus will be on applied learning through a flipped classroom and scenario based pedagogical design. Thus, bridging a connection between lectures and seminar activities to stimulate active learning and engagement for all modes of delivery.

The programme offers a range of routes to qualification and boasts an excellent professional experience opportunity. Professional experience can take place as either a placement in industry, or within York St John University London as a part of the highly innovative Enterprise Academy (EA).

In the case of placements, thanks to the University's location, there are many opportunities on the campus doorstep. Within walking distance, there is 'Tech City', a cluster of high-tech companies and ambitious entrepreneurs, which rivals 'Silicon Valley' and supports thousands of companies and professionals. The City, also known as the 'Square Mile', is the historic financial district and home to the London Stock Exchange and Bank of England. Alternatively, if you wish to explore your creative side, the campus is in the heart of the 'Design District', as East London and Spitalfields are dominated by leading creative and entertainment agencies. With over 24,000 businesses, you have significant resource and opportunity to engage successfully with placements.

Alternatively, the York St John University London EA offers four pathways to success, including entrepreneurship, leadership, technical and research development, equipping you regardless of your discipline with the necessary skills to be the innovators and trail blazers of tomorrow. In the case of MSc Data Science, the EA purposefully and proactively facilitates the convergence of leadership and/or entrepreneurship with technical data science skills. The technical pathway is of particular interest, designed to engage you in the metaverse and virtual reality (as a delivery medium) working with big data, in pursuit of building a technically driven project, informed by contemporary issues in the field. You will be challenged to engage in the technical development of data science projects, whilst communicating and converting the resultant product/concept to both a technical (expert/peer) and business (lay/consumer) audience.

In both settings, be it placement or the EA, your experience will be industry designed, led and delivered. At completion of the programme, you will be able to confidently pursue your career in the data science community using appropriate processes to specify, design, deploy, verify, and maintain data science and BD information systems, including working with technical uncertainty, and undertaking risk management associated with a range of activities.

Admissions Criteria

Students must meet the University's general entry criteria for postgraduate study. In addition, students must have:

1. A Bachelor's degree or equivalent, achieved at Class 2:2 or above, from an approved university or institution or:
2. Current or recent work experience (within the last two years) appropriate to enable contribution to the programme.

Whilst we look to maintain the London ethos of inclusion and equity, MSc Data Science requires applicants from (national or international) numerate science, computer science, data science or engineering backgrounds. Either traditionally via the undergraduate route, or via substantial industrial/practical experience**.**

If the student's first language is not English, they 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 they do not have traditional qualifications, they may be eligible for entry on the basis of Recognition of prior learning (RPL). York St John University also considers applications for entry with advanced standing.

Programme Aim(s)

As the complexity and volume of data continues to grow, there is significant demand for data science skills across sectors including IT, business, government, healthcare, finance, and marketing to support visualisation and analysis of such data. The overall aim of the programme is to develop critical understanding and self-awareness to cultivate cutting edge skills and knowledge, enhancing individual and organisational potential.

Programme Learning Outcomes

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

7.1 Critically apply skills, techniques, and knowledge from a range of data analysis methods and algorithms for enhancing and solving problems in various domains.

7.2 Develop abstract thinking and design ability to analytically demonstrate concepts relating to data science.

7.3 Use research-based knowledge for the design of experiments, analysis, and interpretation of data to provide valid results.

7.4 Critically evaluate and analyse advanced data science topics, and concepts, and implement them in workplace.

7.5 Identify and implement appropriate programming and software tools to critically analyse big data applications in workplace.

7.6 Critically examine and implement the cryptographic concept in Blockchain.

7.7 Scrutinise and implement smart contracts and its application in Blockchain system.

7.8 Critically analyse the data and apply predictive modelling technique in the field of Machine Learning and Artificial Intelligence.

7.9 Critique legal, social, and ethical issues within the field of data science and applicable ancillary sectors, as applied to contemporary research and industry practice.

7.10 Design, conduct, analyse and disseminate an extended independent research project from inception to completion.

Programme Structure

Full Time Programme Structure (12 months)

Code	Level	Semester	Title	Credits	Module status	
					Compulsory (C) or optional (O)	non-compensatable (NC) or compensatable (X)
LDS7001M	7	1	Statistical Programming	20	C	X
LDS7002M	7	1	Database Systems and Security	20	C	X
LDS7003M	7	1	Artificial Intelligence and Machine Learning	20	C	X
LDS7004M	7	2	Data Visualisation	20	C	X
LDS7005M	7	2	Big Data and Cloud Computing	20	C	X
LDS7006M	7	2	Blockchain	20	C	NC
LDS7007M	7	All	Applied Research Project	60	C	NC

September students commence with LDS7001-3M. February students commence with LDS7004-6M.

Full Time Programme Structure with Professional Experience (24 months)

Code	Level	Semester	Title	Credits	Module status	
					Compulsory (C) or optional (O)	non-compensatable (NC) or compensatable (X)
LDS7001M	7	1	Statistical Programming	20	C	X
LDS7002M	7	1	Database Systems and Security	20	C	X
LDS7003M	7	1	Artificial Intelligence and Machine Learning	20	C	X
LDS7004M	7	2	Data Visualisation	20	C	X
LDS7005M	7	2	Big Data and Cloud Computing	20	C	X
LDS7006M	7	2	Blockchain	20	C	NC
LDS7008M	7	All	Applied Research Project (Professional Experience)	60	C	NC

September students commence with LDS7001-3M. February students commence with LDS7004-6M. Professional experience will take place during the second year of the programme, with the option of a professional placement, or YSJU London's Enterprise Academy. Skills acquired will be assessed via the Applied Research Project (Professional Experience). Please see the 'Professional Experience (Option)' section below.

Part Time Programme Structure (24 months)

Code	Level	Semester	Title	Credits	Module status	
					Compulsory (C) or optional (O)	non-compensatable (NC) or compensatable (X)
LDS7001M	7	1	Statistical Programming	20	C	X
LDS7002M	7	4	Database Systems and Security	20	C	X
LDS7003M	7	3	Artificial Intelligence and Machine Learning	20	C	X
LDS7004M	7	2	Data Visualisation	20	C	X
LDS7005M	7	5	Big Data and Cloud Computing	20	C	X
LDS7006M	7	6	Blockchain	20	C	NC
LDS7007M	7	All	Applied Research Project	60	C	NC

September students commence with LDS7001M. February students commence with LDS7004M.

Part Time Programme Structure with Professional Experience (36 months)

Code	Level	Semester	Title	Credits	Module status	
					Compulsory (C) or optional (O)	non-compensatable (NC) or compensatable (X)
LDS7001M	7	1	Statistical Programming	20	C	X
LDS7002M	7	4	Database Systems and Security	20	C	X
LDS7003M	7	3	Artificial Intelligence and Machine Learning	20	C	X
LDS7004M	7	2	Data Visualisation	20	C	X
LDS7005M	7	5	Big Data and Cloud Computing	20	C	X
LDS7006M	7	6	Blockchain	20	C	NC
LDS7008M	7	All	Applied Research Project (Professional Experience)	60	C	NC

September students commence with LDS7001M. February students commence with LDS7004M. Professional experience will take place during the latter half of the programme, with the option of a professional placement, or YSJU London's Enterprise Academy. Skills acquired will be assessed via the Applied Research Project (Professional Experience). Please see the 'Professional Experience (Option)' section below.

Professional Experience (Option)

Professional experience is the perfect opportunity to enhance your career prospects and deepen your understanding of your chosen area of expertise. The MSc Data Science programme is available with a 12-month/24-month option for professional experience (depending on mode of study selected – full or part time), allowing you to gain knowledge and skills in the UK to evidence your capabilities (minimum of 9 months professional experience activity required).

YSJU London offers support to those seeking professional experience, through tailored services provided by our London Placement Team, such as career appointments, employer visits, career fairs in London and York and access to exclusive jobsites. While there is no guarantee you will secure a placement, as this decision sits entirely with employers, we can guarantee you will have access to professional experience through our Enterprise Academy (EA). EA is our industry led programme, with two pathways for entrepreneurship or leadership development. The EA gives you the chance to design and develop a technology business. The experience takes place over two semesters (6 months facilitated, 3 months practice; 9 months activity total) and is built around our DisrupTeK online course.

Learning, Teaching and Assessment

The learning, teaching and assessment philosophy is based on the principles of learner-driven pedagogy, integrative curriculum design, and sustainable assessment, to develop the innovative professional and reflective practitioner. The programme is focused on developing an array of desirable graduate attributes, through inclusive and equitable teaching and assessment practices, that prioritise your experience and leaders of tomorrow. As a result, there are several tenets that underpin the programme's design including:

- The use of active learning approaches, which are practical, authentic, and experiential in nature;
- Develop levels of responsibility, accountability, and autonomy over time;
- Focusing on holistic competence, as well as programme content;
- Encouraging reflection as an aid to learning.

The programme recognises that you are likely to bring significant experience and knowledge, that can be shared, and subsequently shape the learning environment. Therefore, the programme's pedagogy is divergent, rooted in project-based and inquiry-led learning. You may not have engaged in conventional education for some time or may never have formally studied data science at undergraduate level. Thus,

support with study skills, conventions of academic analysis and scholarly writing will be available throughout the duration of the programme.

All modules are designed and delivered utilising a range of blended teaching, learning and assessment techniques, including (online/video) lectures, workshops, seminars, debates, discussion forums and tutorials. By utilising a range of assessment practices, the programme will ensure an inclusive and individualised experience, through mechanisms such as portfolios, presentations, vivas, and project-based research. Each Module Tutor will provide formative assessment opportunities and feedback/forward, to inform your work prior to submission. You will benefit from a variety of feedback modes (as appropriate to the method of assessment), encompassing verbal/audio, written/rubric, live/in-person and via individual and/or group coaching techniques. Feedback received will detail how you can develop areas of research, subject knowledge, and professional practice.

Progression and Graduation Requirements

The University's general regulations for postgraduate 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.

Internal and External Reference Points

This programme specification was formulated with reference to:

- University mission and values
- University 2026 Strategy
- QAA subject benchmark statements
- Frameworks for Higher Education Qualifications

Date written / revised: June 2022
Programme originally approved: