Programme Specification 2025-26

1.	**Programme title**	MSc Data Science
2.	**Awarding institution**	Middlesex University
3a	**Teaching institution**	Middlesex University London
3b	**Language of study**	English

4a	**Valid intake dates and mode of study**

Mode of Study	Cohort	Delivery Location	Duration
Full-time (FT)	Semester 1	1 Hendon, 2 Dubai, 3 Mauritius	1 Years
Full-time (FT)	Semester 2	1 Hendon, 2 Dubai, 3 Mauritius	1 Years
Part-time (PT)	Semester 1	1 Hendon, 2 Dubai, 3 Mauritius	2 Years
Part-time (PT)	Semester 2	1 Hendon, 2 Dubai, 3 Mauritius	2 Years
Full-time (FT)	Semester 1	Hendon	15 Months
Full-time (FT)	Semester 1	Hendon	24 Months
Full-time (FT)	Semester 2	Hendon	15 Months
Full-time (FT)	Semester 2	Hendon	24 Months

4c	**Delivery method**	On Campus/Blended Learning

5. Professional/Statutory/Regulatory body (if applicable)
N/A

6.	**Apprenticeship Standard** (if applicable)	N/A

7. Final qualification(s) available
Target Award Title(s)
MSc Data Science
MSc Data Science with Professional Placement (15 months)
MSc MSc Data Science with Professional Placement (24 months)

Exit Award Title(s)
PGCert Data Science
PGDip Data Science

8. Academic year effective from	2025-26

9. Criteria for admission to the programme

Applicants should normally have one of the following:

•A second class or higher honours degree in a relevant discipline (e.g., Computer Science, Mathematics, Statistics, Engineering, or Physics) awarded by a UK university within the last five years, or a qualification deemed equivalent by the University.
•A second class or higher honours degree in any STEM discipline awarded by a UK university, or an equivalent qualification, accompanied by a valid Data Science certification from recognised providers such as Microsoft, Google, or IBM. Certifications must demonstrate proficiency in programming, data analysis, and machine learning.
•A second class or higher honours degree in any STEM discipline awarded by a UK university, or an equivalent qualification, with at least three years of professional experience in data science, programming, or related fields such as data analysis, statistical modelling, quantitative research, or geospatial analysis.

Recognition of Prior Learning (RPL)
Applicants with significant industry experience or relevant professional certifications may be considered for admission under the Recognition of Prior Learning (RPL) framework. This may also enable exemptions from specific modules upon enrolment.

English Language Requirements
International students whose first language is not English, or who have not been taught in English throughout their academic career, must achieve an IELTS score of 6.5, with a minimum of 6.0 in each component. Equivalent English language qualifications may also be considered.

The University aims to ensure that its admissions processes are fair, open and transparent and aims to admit students who, regardless of their background, demonstrate potential to successfully complete their chosen programme of study where a suitable place exists and where entry criteria are met. The University values diversity and is committed to equality in education and students are selected on the basis of their individual merits, abilities and aptitudes. The University ensures that the operation of admissions processes and application of entry criteria are undertaken in compliance with the Equality Act.

We take a personalised and fair approach to how we make offers. We feel it's important that our applicants continue to aspire to achieving great results and make offers which take into account pieces of information provided to us on the application form.

This includes recognition of prior learning and experience. If you have been working, or you have other learning experience that is relevant to your programme, then we can count this towards your entry requirements and even certain modules once you start studying.

10. Aims of the programme

The programme aims to:

The MSc Data Science is designed to equip students with cutting-edge technical skills, analytical capabilities, and ethical awareness to excel in the evolving world of data science. The programme uniquely blends foundational learning with advanced, real-world applications, making it accessible to students from diverse academic and professional backgrounds.

The key aims of the programme are to:

•Understand and Apply AI Concepts. Introduce students to AI through the study of machine learning techniques, equipping them with the knowledge to understand how AI works, evaluate AI systems, and design innovative AI-based solutions as part of broader data science projects.

•Develop Analytical and Visualisation Skills. Train students to uncover meaningful insights from data using advanced data visualisation techniques and tools, ensuring effective communication of complex findings.

•Prepare for Big Data Challenges. Enable students to work with large-scale datasets using cloud computing and big data technologies, addressing real-world issues of scalability, performance, and integration with AI systems.

•Promote Ethical and Responsible Use of Data and AI. Foster an understanding of the ethical, legal, and societal implications of data and AI technologies, preparing students to approach their work responsibly and inclusively.

•Encourage Innovation and Problem-Solving. Cultivate creativity and problem-solving skills by providing opportunities to design and implement innovative solutions to real-world challenges using data science and AI techniques.

•Bridge Research and Practice. Offer hands-on experience with practical projects and industry collaborations, ensuring students are prepared to contribute to both academic research and professional practice.

This MSc is particularly suited for those looking to transition into data science from scientific fields (e.g., physics, mathematics, engineering, and computer science), as well as professionals seeking to enhance their technical expertise in AI, big data, and analytics. Through its rigorous and applied approach, the programme prepares graduates to become leaders in the field, capable of shaping the future of data science across multiple industries.

11. Programme learning outcomes

Programme - Knowledge and Understanding

On completion of this programme the successful student will have a knowledge and understanding of:

1. The theoretical foundations, key algorithms, and statistical methods underpinning data analytics, machine learning, and artificial intelligence.

2. The architectures, frameworks, and methodologies for handling structured and unstructured data at scale, including cloud computing and distributed systems.

3. The principles and methods for visualising complex datasets and processing visual data, including AI-enhanced computer vision techniques.

4. The regulatory frameworks, data privacy laws, and ethical guidelines that govern data collection, management, and use in various industries.

Programme - Skills

On completion of this programme the successful student will be able to:

5. Design, apply, and optimise machine learning and AI models to solve real-world problems across different domains.
6. Use advanced data science tools and techniques to extract insights from structured, unstructured, and large-scale data sources.
7. Design and develop compelling visual representations of data to facilitate decision-making and communicate insights effectively.
8. Plan, manage, and execute an original data science research project, demonstrating critical thinking and innovation.

12. Teaching/learning methods
The MSc Data Science programme at Middlesex University employs a range of teaching and learning methods designed to facilitate the achievement of the programme's learning outcomes and to provide students with both the theoretical foundation and practical experience necessary for a successful career in data science. The methods are tailored to the content and complexity of each module, ensuring an inclusive and engaging learning environment. These include: •Workshops. Core concepts across the modules are taught in dynamic and interactive workshops, which serve as the primary method of delivery for the programme. In these sessions, students will work through practical examples, engage in group discussions, and develop solutions to real-world data science problems. Workshops are designed to encourage active participation. This approach ensures that students not only grasp theoretical concepts but also acquire the hands-on experience necessary for applying data science techniques in practice. •Labs. In addition to workshops, students will have dedicated lab sessions where they can work individually or in small groups on more detailed tasks. These sessions provide a space for students to deepen their understanding of complex topics, such as machine learning algorithms, image processing, and Natural Language Processing (NLP), by working on assignments, datasets, and projects. Labs will be supervised by teaching staff, providing students with immediate support when they encounter difficulties. •Online Class and Key Concept Videos. To support students in mastering challenging topics, the programme includes online lessons and key concept videos. These short, focused videos will break down complex concepts into concise, easy-to-understand explanations, complementing the materials covered in workshops and labs. Additionally, key concept videos and online material will be available for students to engage with in their own time, allowing for flexible and self-paced learning. •Independent Study. Students will be encouraged to engage in independent study throughout the programme. This will include completing set readings, reviewing lecture materials, and working on assignments or projects that require research, data collection, and analysis. Independent study will also be an essential component of the dissertation project, where students will develop their own research question, design their approach, and present their findings. The programme will support independent learning by offering access to a wide range of online resources, including research papers, datasets, and coding tutorials, as well as providing dedicated time for individual consultation with academic staff.
Approx. number of timetabled hours per week (at each level of study, as appropriate), including on-campus and online hours. FT: 12 h/w, PT: 6 h/w. Approx. number of hours of independent study per week (at each level of study, as

appropriate). FT: 28 h/w., PT: 14 h/w.

Approx. number of hours on placement (including placement, work-based learning or year abroad, as appropriate). FT 3 months (15 months programme) or minimum of 36 weeks (24 months programme), PT N/A.

13. Employability

13a Development of graduate competencies

13b Employability development

Development of graduate competencies
The MSc Data Science programme is designed to equip graduates with a balanced set of technical, professional, and research competencies, ensuring they are well-prepared for careers in data science, artificial intelligence, and related fields. The programme aligns with the Middlesex University Graduate Competencies at the postgraduate level, fostering skills such as problem-solving, technological agility, communication, collaboration, and resilience. Graduate competencies are developed through a combination of curriculum design, practical learning experiences, and assessment strategies that align academic knowledge with both industry and research expectations.

The programme fosters technical expertise by incorporating modules focused on machine learning, big data, data analytics, and data visualisation, reflecting current industry demands. Students gain hands-on experience through lab-based learning, cloud computing applications, and real-world datasets, preparing them to work with complex and large-scale data environments.

Beyond technical skills, the programme emphasises professional competencies such as effective communication, teamwork, leadership, and ethical considerations in data science, in line with Middlesex University's postgraduate-level expectations. These skills are embedded throughout the curriculum, enabling students to collaborate effectively in multidisciplinary teams, present findings to technical and non-technical audiences, and critically assess the ethical and legal implications of data-driven decision-making.

The assessment strategy reinforces these competencies through project-based learning, where students apply their knowledge to solve real-world problems using industry-relevant tools and methodologies. Additionally, the programme offers placement opportunities, enabling students to gain practical experience and build professional networks.

By integrating technical mastery, professional development, leadership, and hands-on experience, the programme ensures that graduates are not only proficient in data science methodologies but also adaptable, innovative, resilient, and well-equipped to meet the evolving challenges of the data-driven world.

Employability development
•Technical Proficiency and Practical Experience. Students will gain hands-on experience in machine learning, data analytics, NLP, image processing, and big data technologies, applying these skills to real-world challenges. Through practical assignments, case studies, and labs, students will develop their problem-solving abilities and critical thinking skills.
•Industry Engagement and Career Support. The programme actively connects students with

industry through guest lectures, networking events, and industry-led projects. Employers and industry professionals will provide insights into current trends, challenges, and skills in demand, helping students align their learning with job market expectations. Career development workshops will further support students in preparing for employment opportunities.
•Communication and Collaboration Skills. Students will enhance their ability to communicate technical findings effectively through workshops, presentations, and group projects, developing the interpersonal skills necessary to work in cross-disciplinary teams.
•Ethical Awareness and Social Responsibility. The Ethics and Law for Data Science module ensures students develop an understanding of the legal and ethical implications of data-driven decision-making, preparing them to work responsibly in the field.
•Research, Independent Learning, and Lifelong Development. Students will undertake an independent research dissertation, allowing them to apply their technical and analytical skills to an industry-relevant or research-based project. The programme fosters adaptability and lifelong learning, ensuring that graduates remain agile in the rapidly evolving field of data science.

By integrating practical learning, industry engagement, and professional development, the MSc Data Science programme ensures that graduates are equipped not only with the technical knowledge needed for data science roles but also with the critical skills required to succeed in a dynamic and competitive job market.

Further support and embedded workshops on a range of career topics are available from the University's Employability Service.

13c Placement and work experience opportunities (if applicable)

For MSc Data Science with Professional Placement (15 months) (011I134) and MSc Data Science with Professional Placement (24 months) (011I135) only

As well as the normal programme structure, a programme with a placement is available (via application) for full-time students. Students can choose to apply for either a 3-month or extended placement duration (minimum 36 weeks). Students are responsible for securing their placement through independent applications, with support available from the university's employability service. This opportunity allows students to gain hands-on experience in data science, machine learning, and AI applications by working in professional environments where they can apply their skills to real-world challenges. Placements are expected to be in relevant data science roles within commercial organisations, research institutions, or technology-driven companies. These roles typically involve developing and deploying machine learning models, performing advanced data analysis, implementing AI solutions, managing big data infrastructure, or using data-driven insights for business intelligence.

13d Future careers / progression

The programme is taught by leading experts in the field, including specialists in theoretical machine learning, social computing, natural language processing (NLP), data visualisation and image processing. These notable researchers bring cutting-edge knowledge and innovative approaches to the classroom, giving students access to the latest developments in the field.

As a result, graduates of the MSc Data Science programme will be positioned to enter a wide range of career paths, equipped with both the deep technical expertise and the practical, research-informed approach necessary to excel.

Specifically, graduates may find opportunities in sectors such as:
•Technology and Software Development. Designing and implementing machine learning algorithms, developing AI-powered applications, and creating data-driven solutions in industries such as fintech, e-commerce, and gaming.
•Healthcare and Biotechnology. Applying data science techniques to medical research, personalised medicine, bioinformatics, and health data analysis to improve patient outcomes and advance medical discoveries.
•Finance and Consulting. Using advanced analytics to analyse financial markets, assess risks, create predictive models, and provide data-driven consulting services in areas like investment banking, insurance, and fintech.
•Government and Public Policy. Leveraging data science to inform public policy decisions, optimise resource allocation, and analyse social, economic, and environmental data for governmental planning and strategic initiatives.
•Retail and Marketing. Applying data analytics to understand consumer behaviour, optimise marketing strategies, and develop recommendation systems that drive customer engagement and business growth.
•Research and Academia. Pursuing further academic study, such as PhD programmes in data science, machine learning, or AI, and contributing to cutting-edge research in social computing, artificial intelligence, and big data analytics.

14. Assessment methods

Students' computing-related cognitive abilities are assessed by a combination of coursework, multiple choice questions and an individual dissertation. Coursework may comprise group and individual assignments, presentations and viva-voce examination.

Students' cognitive skills are assessed by coursework and an individual dissertation. Coursework may comprise group and individual assignments, tests, presentations and viva-voce examination.

Students' practical skills are assessed by coursework and an individual dissertation. Coursework may comprise group and individual assignments, tests, presentations and viva-voce examination.

15. Programme Structure (level of study, modules, credits and progression requirements)

Structure is indicative for Part-time routes.

Students must take all of the compulsory modules and choose following programme requirements from the optional modules.

Non-compensatable modules are noted below.

Available Pathways

Not Applicable

Year 1

Year 1 Level 7 FT and PT

Code	Type	Module Title	Credits at FHEQ Level
CST4065	Compulsory	AI-Enhanced image processing and computer vision 2025-26	15 at Level 7
CST4066	Compulsory	Machine Learning and AI for Data Science 2025-26	30 at Level 7
CST4067	Compulsory	Cloud and Big Data Technologies 2025-26	15 at Level 7
CST4075	Compulsory	Applied Data Science: From Processing to NLP and LLMs 2025-26	30 at Level 7
CST4068	Compulsory	Visual Data Analysis 2025-26	15 at Level 7
CST4085	Compulsory	Legal and Ethical Aspects of Data Science and AI 2025-26	15 at Level 7
CST4990	Compulsory	Research Methods and Postgraduate Project 2025-26	60 at Level 7
CST4930	Compulsory	Preparing for the Professional Placement 2025-26	0 at Level 7

Year 2

Year 2 Level 7 Hendon FT students with placement option

Code	Type	Module Title	Credits at FHEQ Level

CST4940	Optional	Postgraduate Work Placement 2026-27	0 at Level 7
CST4950	Optional	Postgraduate Work Placement (extended) 2026-27	0 at Level 7
CST4990	Compulsory	Research Methods and Postgraduate Project 2026-27	60 at Level 7

Year 2 Level 7 PT

Code	Type	Module Title	Credits at FHEQ Level
CST4065	Compulsory	AI-Enhanced image processing and computer vision 2026-27	15 at Level 7
CST4067	Compulsory	Cloud and Big Data Technologies 2026-27	15 at Level 7
CST4068	Compulsory	Visual Data Analysis 2026-27	15 at Level 7
CST4085	Compulsory	Legal and Ethical Aspects of Data Science and AI 2026-27	15 at Level 7
CST4990	Compulsory	Research Methods and Postgraduate Project 2026-27	60 at Level 7

*Please refer to your programme page on the website re availability of option modules

16. Programme-specific support for learning
For more information, please visit: https://mymdx.mdx.ac.uk/campusm/home#menu The Department of Computer Science teaching and learning approach aligns with the University's goal to promote learner autonomy and resource-based learning. To enhance

the experience of Computer Science students:

Specialist Laboratories and Software:
Students have access to state-of-the-art labs equipped with industry-standard software and hardware. These facilities support areas such as data analysis, machine learning, and data visualisation. Labs are available for both structured teaching sessions and self-directed projects.

Induction and Diagnostic Assessments:
All new Computer Science students participate in an induction programme, which may include early diagnostic testing in numeracy, programming logic, and technical literacy. The University offers one-to-one tutorials and workshops for students needing additional support.

Digital and Networked Facilities:
Students are provided with a personal email account, secure networked storage, and remote access to essential software and systems, enabling effective study and collaboration.

Programme and Module Handbooks:
An electronic version of the programme handbook is posted on My Learning. distributed during enrolment. In addition, Module-specific handbooks and online learning resources covering foundational and advanced computer science topics are also provided.

Library and Support Services:
Extensive library resources, including access to technical books, academic journals, and digital archives, are available to support Computer Science learning. Students can also access personalised advice and guidance on academic and personal matters through the student support services.

Group Tutorials and Continuous Feedback:
Group tutorials are provided for each module, enabling interactive learning and in-depth discussions on all taught modules. Feedback is consistently provided on all formative assessments to facilitate continuous improvement.

Research and Collaboration Opportunities:
The department's research initiatives in fields such as artificial intelligence, machine learning, computational data science, and data visualisation inform teaching. Students may have the chance to collaborate on research projects with faculty members, gaining hands-on experience in cutting-edge developments.

Support for Students with Disabilities:
Middlesex University is committed to supporting students with disabilities. Some practical elements of the Computer Science programme, such as hands-on lab work, may require adaptations. Prospective students are encouraged to visit the campus to discuss their specific needs confidentially. For additional support, contact the Disability Support Service at disability@mdx.ac.uk.

17. HECos code(s)	100366: Computer Science

18. Relevant QAA subject benchmark(s)	Computing 2022

19. University Regulations
This programme will run in line with general University Regulations: Policies | Middlesex University This programme will run in line with general University Regulations: Policies | Middlesex University

20. Reference points
•QAA Master's Degrees Characteristics Statement - Feb 2020 - Characteristics Statement - Masters Degrees •QAA Computing subject benchmark statement, Computing (March, 2022) (https://www.qaa.ac.uk/quality-code/subject-benchmark-statements/computing) •QAA UK Quality Code for Higher Education (June 2024) (https://www.qaa.ac.uk/quality-code) •British Computer Society (BCS) guidelines on course accreditation (April, 2022) (https://www.bcs.org/media/1209/accreditation-guidelines.pdf) •Certifications for IT Professionals (https://www.bcs.org/qualifications-and-certifications/certifications-for-professionals/) •Skills Framework for the Information Age (SFIA) (https://sfia-online.org/en) •Association for Computing Machinery (ACM) Guidelines for Undergraduate Degree Programmes in Information Systems (2010) (https://www.acm.org/education/curricula-recommendations) •European e-Competence Framework that is now known as IT Professionalism Europe (https://itprofessionalism.org/) •DigiCompEdu Framework (https://joint-research-centre.ec.europa.eu/digcompedu/digcompedu-framework_en) •Middlesex University Learning and Quality Enhancement Handbook (section 3) (https://www.mdx.ac.uk/about-us/policies/academic-quality/handbook) •Middlesex University Policies (https://www.mdx.ac.uk/about-us/policies) •Middlesex University Graduate Competencies •Middlesex University Learning Framework Principles for Postgraduate Programmes

21. Other information *(if applicable)*

Please note programme specifications provide a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve if they take full advantage of the learning opportunities that are provided. More detailed information about the programme can be found in the rest of your programme handbook and the university regulations.

Curriculum map for MSc Data Science
Programme learning outcomes

Knowledge and understanding

A1	The theoretical foundations, key algorithms, and statistical methods underpinning data analytics, machine learning, and artificial intelligence.
A2	The architectures, frameworks, and methodologies for handling structured and unstructured data at scale, including cloud computing and distributed systems.
A3	The principles and methods for visualising complex datasets and processing visual data, including AI-enhanced computer vision techniques.
A4	The regulatory frameworks, data privacy laws, and ethical guidelines that govern data collection, management, and use in various industries.

Skills

B1	Design, apply, and optimise machine learning and AI models to solve real-world problems across different domains.
B2	Use advanced data science tools and techniques to extract insights from structured, unstructured, and large-scale data sources.
B3	Design and develop compelling visual representations of data to facilitate decision-making and communicate insights effectively.
B4	Plan, manage, and execute an original data science research project, demonstrating critical thinking and innovation.

Programme learning outcomes - Highest level achieved by graduates

A1	A2	A3	A4	B1	B2	B3	B4
7	7	7	7	7	7	7	7

Mapping by level of study and module

Module Title	**Module Code by Level of study**	A1	A2	A3	A4	B1	B2	B3	B4
Level of study (year)									
Machine Learning and AI for Data Science	CST4055	□	□			□			
AI-Enhanced image processing and computer vision	CST4065		□					□	
Cloud and Big Data Technologies	CST4045		□				□		
Applied Data Science: From Processing to NLP and LLMs	CST4075		□		□	□	□		
Visual Data Analysis	CST4035		□					□	
Legal and Ethical Aspects of Data Science and AI	CST4085			□					
Research Methods & Postgraduate Project	CST4990	□	□	□	□	□	□		□
Preparing for the Professional Placement (0 credits)	CST4930				□	□			

Postgraduate Work Placement – 3 months	CST4940				□	□			
Postgraduate Work Placement – 12 months	CST4950				□	□			□