MSc Data Science

POSTGRADUATE | ONLINE | BLENDED

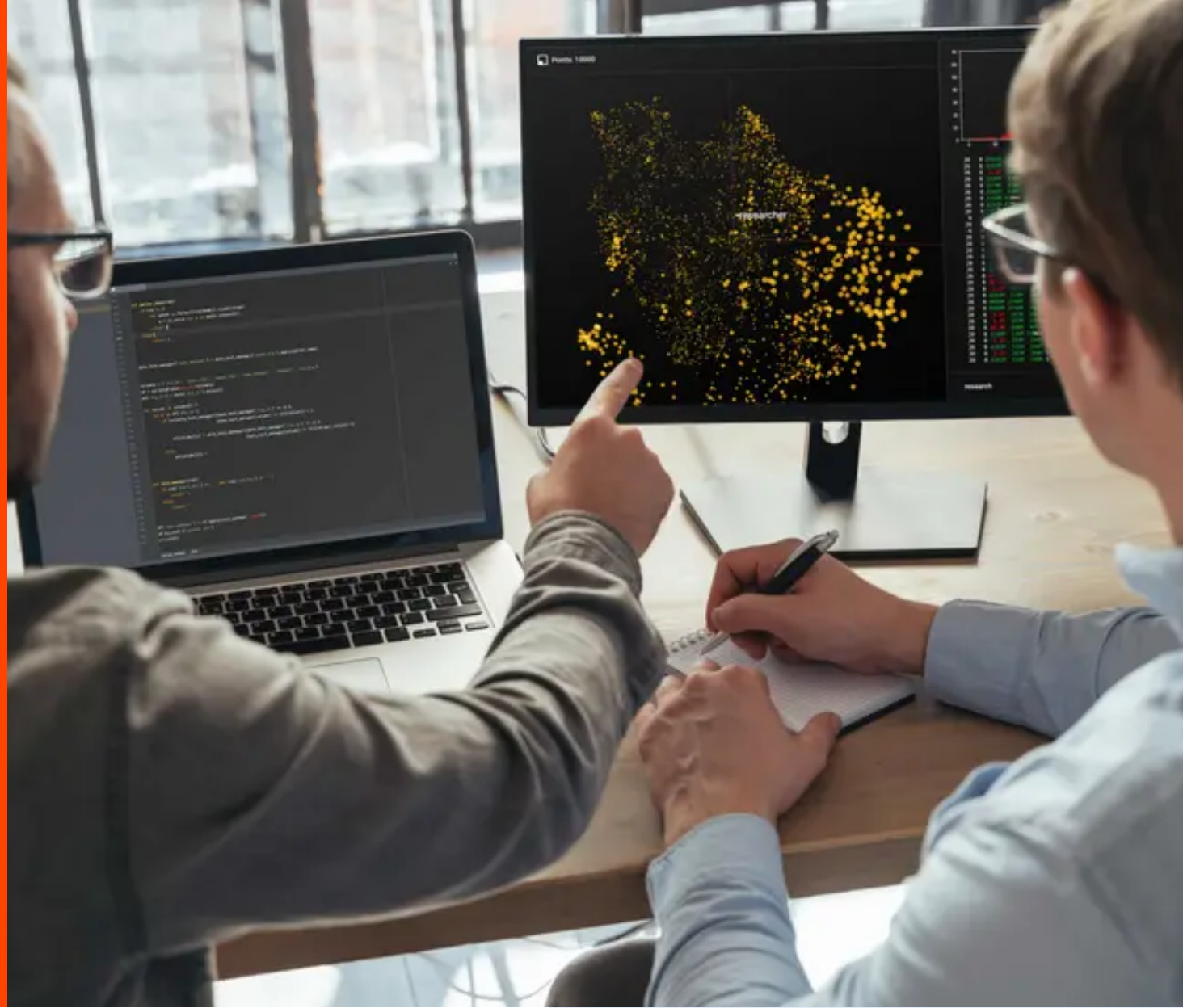


TABLE OF CONTENTS

Arden University has three decades of experience providing higher education, and we've helped more than 50,000 students globally gain the qualifications they need to succeed. According to our 2021 graduate survey, we have a 95% student satisfaction rating, and 9 out of 10 Arden students believe studying with us has helped them transform their careers.

MSc Data Science

POSTGRADUATE ONLINE BLENDED

You can visit the Arden University website page for this course here.

Ready to start or advance your career in data science and AI? Our MSc Data Science programme equips you to meet the rising demand for graduates with data science expertise. You'll gain the hands-on skills to excel in data-related roles, paving the way for a rewarding and lucrative career in a thriving field. Our curriculum spans core mathematical concepts to advanced topics like artificial intelligence, machine learning, deep learning, and cloud computing. You'll become an expert in key tools and programming languages including Python and R, and gain proficiency in software like Jupyter Notebooks and Tableau.

Course at a glance

- Learn how data science and AI operate from a practical perspective, including data collection, pre-processing, in-depth analysis for operational and strategic purposes, and building neural networks to enable real-world practical applications.
- Apply your practical knowledge to undertake real-world business scenarios using real data sets.
- Build a portfolio demonstrating your practical, industry-standard data science expertise to existing and future employers.
- Graduate with the competence to fill emerging skills gaps in this burgeoning field.

Key facts

Location: Online, Blended
Start dates: Every 3 months
Part time: 1 year+
Full time: 1 year

Contact us

If you'd like to get in touch to find out more about studying this course, please use the following:

UK enquiries:
Call 0800 268 7737
Email study@arden.ac.uk

International online learning:
Call +44 20 300 56070
Email online@arden.ac.uk

Berlin blended learning:
Call +49 30 23590100
Email studyberlin@arden.ac.uk

Entry requirements

Standard entry:

- A 2.2 Honours degree in a numerate subject where a majority of the modules were mathematics-based.
- Or, an equivalent 2.2 Honours degree with 18 months of relevant computing work experience within a data analysis environment.

Non-standard entry:

- A minimum of 3 years of relevant computing work experience in a computing or IT role.
- IELTS 6.5 (no less than 6.0 in any element); or TOEFL iBT 90; or equivalent.
- Alternatively, evidence you have previously studied in English can be accepted.
- We also offer an internal English test for applicants who are unable to provide an English Proficiency letter.

Career Progression

- Big Data Specialist
- Senior Data Analyst
- Artificial Intelligence Specialist
- Machine Learning Engineer
- Data Scientist

If you'd like to get your application started, please click here.

Online learning

Studying this course online gives you a lot of flexibility and convenience. You can enrol with us from anywhere in the world and study your degree from the comfort of home, without the requirement to attend classes in a physical location.

You'll study the course through ilearn, our university campus in the cloud. ilearn provides you with an integrated online learning experience, including your virtual classroom, lecture hall, and online library of more than half a million books and journals – yours for free while you study with us.

Studying online doesn't mean studying alone. As well as receiving regular feedback and guidance from your course tutor, you'll be studying with likeminded students and you'll have access to community message boards to discuss your course and the topics being raised within it.

We've even set up community boards embedded into each of the course modules so you can have discussions with your tutor and classmates on the topics you're currently learning.

You can find out more about online learning with Arden University here.

Online learning key benefits

- Study anywhere worldwide
- Plan your own schedule
- Benefit from reduced costs
- Study around work and family life

Discover why so many students choose online learning with Arden here.

Blended learning

Blended learning with Arden University brings you the best of both worlds: a flexible mix of face-to-face teaching combined with independent online learning that you can take part in whenever and wherever works best with your existing commitments.

When you study via blended learning, you'll study two modules at a time over 10-week study blocks. Each week of study will require a minimum of 33.5 hours of participation, which comprises:

- 8 hours of timetabled face-to-face teaching each week based in one of our study centres
- A minimum 25.5 hours of independent online learning

Your face-to–face classes will be scheduled on either two mornings (9.00am to 1.00pm) or two afternoons (1.30pm to 5.30pm) during teaching weeks. Some of our courses are also available with evening classes in select locations. You'll be able to opt for your preferred time when you apply and, we'll do our best to accommodate your preferred schedule subject to student intake numbers for your course.

Study centre locations

- Ealing, London, UK
- Holborn, London, UK
- Tower Hill, London, UK
- Birmingham, UK
- Manchester, UK
- Leeds, UK
- Berlin, Germany

Please note: course availability varies depending on study centre location.

You can find out more about blended learning with Arden University here.

The course delivers exciting and up-to-date module content that will help you develop vital career skills. Just some of the course highlights embedded into your modules include essential maths for problem-solving in data science, empowering data insights with artificial intelligence, navigating the cloud and Big Data landscape, and turning data into business success.

Your module assessments will immerse you in practical, real-world challenges so that you graduate with the in demand skills to shape the future of data-driven industries and make a significant impact in your future role. Please see the following pages for a detailed overview of each course module.

Level 7 core modules

Programming for Data Analytics (20 credits)

This module serves as an introduction to programming for data analytics, utilising Python and its numerous associated libraries. Its primary objective is to impart a practical understanding of applying programming paradigms to address data science challenges from first principles. In the process, it will enhance your comprehension of the essential tools, programmatic techniques, and features required to prepare, manipulate, and analyse data. This hands-on experience and knowledge will enable a comprehensive understanding of the methods and practices employed by programmers in data science.

- **Demonstrate a critical understanding of the concepts and principles of programming and programming paradigms within a data science environment.**
- **Employ relevant tools, programmatic techniques, libraries, and features to prepare, manipulate, and analyse data**
- **Critically evaluate the preliminary results of manipulating and analysing data and report findings in a non-technical manner.**

Mathematics for Data Science (20 credits)

“Mathematics for Data Scientists” concentrates on four key mathematical and statistical foundations relevant to the field of data science: algebra, calculus, statistics, and probability. This module is designed to equip you with the ability to comprehend the most complex data science methodologies from both a fundamental and advanced mathematical standpoint, which will be applied throughout the programme. Upon successfully completing this module, you will gain the confidence to identify and address mathematical challenges at a significantly higher level.

- **Develop an advanced understanding of mathematical concepts and their application in data science**
- **Apply mathematical principles to solve data science-related problems.**
- **Apply mathematical functions and equations to derive advanced analytical solutions.**

Big Data and Cloud Computing (20 credits)

Cloud services empower businesses of all sizes to benefit from distributed services. This module provides you with a comprehensive overview of cloud computing and its underlying technologies, big data analytics design principles, and advanced cloud storage platforms. This knowledge enables scalable and parallel data analysis and processing, facilitating the execution of analytical algorithms on computer clusters. In essence, this module equips you with valuable insights and skills in leveraging cloud computing for data-driven tasks.

- **Understand the evolution of cloud computing and the challenges involved in analysing big data.**
- **Critically evaluate cloud computing platforms and their application on data processing.**
- **Apply knowledge of architectures to designing and implementing cloud-based solutions for a big-data scenario.**

Machine Learning (20 credits)

The Machine Learning (ML) module focuses on uncovering patterns in large datasets that cannot be easily identified through conventional analysis techniques. This module adopts a hands-on approach to ML techniques, enabling you to utilise suitable tools and inherent algorithms to assess the effectiveness of pattern recognition and forecast future trends. You'll gain a comprehensive foundation in the theoretical and practical aspects of machine learning essential for data science, equipping you with practical technical proficiency in analysing big data and working with various ML algorithms.

- **Demonstrate a practical understanding of the characteristics of various machine learning methods, algorithms, and their practical applications in data analysis.**
- **Select and apply appropriate machine learning algorithms and methodologies for a multitude of given scenarios.**
- **Critically evaluate meaningful results from the application of machine learning techniques and propose realistic improvements.**

Artificial Intelligence and Neural Networks (20 credits)

This module covers the practical construction and implementation of neural networks from first principles in Python, utilising its inherent mathematical applications. Through this, you will gain a deep understanding of activation functions and optimisation processes. After covering the basics, the module will progress to advanced topics, including Convolutional Neural Networks (CNN) and Recurrent Neural Networks (RNN), allowing for rapid data classification and clustering. The module also addresses ethical and moral considerations related to AI, including the challenges and implications that arise from its use.

- **Critically examine artificial intelligence techniques.**
- **Apply artificial intelligence tools and techniques for a given scenario to build an appropriate neural network and assess outcomes for clarity and correctness.**
- **Appraise the ethical impacts of AI and propose appropriate mitigations upon a given scenario.**

Data Visualisation (20 credits)

Data visualisation is increasingly becoming a powerful method of making data accessible to non-specialists, employing elaborate infographics and interactive charts to enhance clarity. Upon concluding this module, you will possess the skills to create advanced data visualisations from a practical standpoint to assist non-specialists in making informed decisions and driving business transformation. The module utilises Python libraries like Seaborn and Matplotlib, in addition to Tableau, to achieve these objectives.

- **Critically appraise a variety of data visualisation techniques in terms of psychology, effectiveness, and target audience.**
- **Apply appropriate data visualisation techniques to analyse and present data.**
- **Demonstrate a critical understanding of how data visualisation can support technical and non-technical audiences in making business decisions.**

Data Science Research Project (60 credits)

The Data Science Research Project will give you the opportunity to address a data science problem through the design, building, testing, and evaluation of an appropriate artefact. You will make critical and evaluative judgements in your chosen topic, and provide workshops to consolidate the project management and technical skills covered in the taught elements of the programme. This project will support you in successfully producing industry-relevant practical outputs and demonstrating your project management skills to future employers.

- **Select, evaluate, and apply critical thinking to an organisational issue or problem within the data science field.**
- **Review literature and methodologies to design and carry out appropriate research and development activities.**
- **Compare and contrast the relative merits of different technical development processes and their relevance to different situations.**
- **Identify and troubleshoot issues in a logical and critical manner.**

Dr. Mohammed Rehman

Head of School – STEM

Dr. Rehman began his career in media, graphic design, and desktop publishing before moving into IT administration and support in the publishing and education sectors. He then made the transition into academia, starting out in multimedia and computing and business before moving onto computing programme leadership. During his 20 years in Higher Education, Mohammed has developed and delivered courses across all study levels and worked on a variety of initiatives and projects related to technology and enhanced learning.

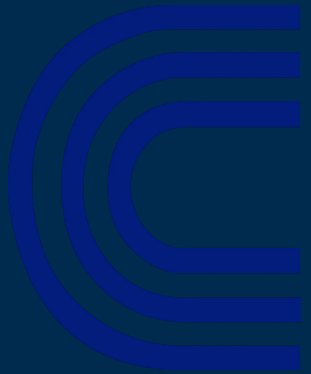
Why study with Arden University?

At Arden University we believe everyone, everywhere has the right to gain the life and career benefits that higher education can bring. We are dedicated to making the university experience convenient and accessible to ambitious and motivated individuals worldwide.

Our mission is to connect adult learners like you with higher education study opportunities that give you the tools you need to fulfil your career and life goals. We challenge conventional perceptions of degree study by providing flexible, vocational courses with timetables and learning options that fit around your life commitments.

As an education provider that is not constrained by bricks and mortar or traditions, we are able to offer courses that are innovative, affordable, and which help students and employers reap the benefits of contemporary training and skills development.

Arden is the university that comes to you, on your terms, helping you achieve the life and professional success you want.



Visit certgates.com

Apply now for a free, no-obligation consultation to discuss your eligibility and next steps.

APPLY NOW

Chat with Us

Find Us on Google Maps

Email Us