G5K823: Master of Data Science

Postgraduate Taught MDS 2021

Essentials

Please note: 2020-21 courses may be affected by Covid-19 and are therefore subject to change due to the ongoing impact of Covid-19. Summaries of course-specific changes resulting from the impact of Covid-19 will be provided to applicants during August 2020.

For the latest information on our plans for teaching in academic year 2020/21 in light of Covid-19, please see www.durham.ac.uk/coronavirus

UCAS code	
Degree	MDS
Mode of study	Full Time
Duration	1 year
Start Date	October 2021
Location	Durham City (www.durham.ac.uk/study/location/durham.city)
More information	Still have questions? (www.durham.ac.uk/study/askus/)
Department(s) Website	www.durham.ac.uk/science.faculty/mds/

Course Summary

Description

All around us, massive amounts of increasingly complex data are being generated and collected, for instance, from mobile devices, cameras, cars, houses, offices, cities, and satellites. Business, research, government, communities, and families can use that data to make informed and rational decisions that lead to better outcomes. It is impossible for any one individual or group of individuals to keep on top of all the relevant data: there is simply far too much. Data science enables us to analyse large amounts of data effectively and efficiently and as a result, has become one of the fastest growing career areas.

Previously, data science was the province of experts in maths and computer science, but the advent of new techniques and increases in computing power mean that it is now viable for non-experts to learn how to access, clean, analyse, and visualize complex data. There is thus a growing opportunity for those already in possession of knowledge about a particular subject or discipline, and who are therefore able to grasp the full meaning and significance of data in their area, to be able to undertake data analysis intelligently themselves. The combination of primary domain knowledge with an expertise in extracting relevant information from data will give those with this ‘double-threat’ a significant employment advantage.

The Master of Data Science is a conversion course with a hard-core of data science, intended to provide Masters-level education rich in the substance of data science for students who hold a first degree that is not highly quantitative, including those in social sciences, the arts and humanities. Introductory modules are designed to bring students with non-technical degrees up to speed with the background necessary for data science. This is done on a need-to-know basis, focusing on understanding in practice rather than abstract theory. Core modules then introduce you to the full range of data science methods, building from elementary techniques to advanced modern methods such as neural networks and deep learning. Optional modules allow you to focus on an area of interest.

The course provides training in relevant areas of contemporary data science in a supportive research-led interdisciplinary learning environment. The broad aims are:

- To develop advanced and systematic understanding of the complexity of data, including the sources of data relevant to science, alongside appropriate analysis techniques
- To enable students to critically review and apply relevant data science knowledge to practical situations
- To develop a critical awareness of current issues in data science which is informed by leading edge research and practice in the field
- To develop a conceptual understanding of existing research and scholarship to enable the identification of new or revised approaches to data science practice
- To develop creativity in the application of knowledge, together with a practical understanding of how established, advanced techniques of research and enquiry are used to develop and interpret knowledge in data science.
- To develop the ability to conduct research into data science issues that requires familiarity with a range of data, research sources and appropriate methodologies and ethical issues.
- To develop advanced conceptual abilities and analytical skills in order to evaluate the rigour and validity of published research and assess its relevance to new situations
- To extend the ability to communicate effectively both orally and in writing, using a range of media.

The degree is designed around a pedagogical framework which reflects the core categories of the data science

discipline.

A number of subjects can be identified and defined within each application domain. Whilst a Masters cannot incorporate all subjects, a selection of subjects representative of each domain ensures that the course incorporates the necessary breadth and depth of material to ensure a skilled graduate.

The Masters allows for progressive deepening in your knowledge and understanding, culminating in the research project which is an in-depth investigation of a specific topic or issue.

The global dimension is reinforced through the use of international examples and case studies where appropriate.

Course Structure

Core modules:

The Master of Data Science is comprised of the following core modules:

- Introduction to Computer Science
- Introduction to Statistics for Data Science
- Ethics and Bias in Data Analytics
- Machine Learning
- Programming for Data Science
- Strategic Leadership
- Introduction to Mathematics for Data Science
- Research Project (60 credits)

Examples of optional modules:

- Text Mining and Language Analytics
- Data Exploration, Visualization, and Unsupervised Learning

Admissions Process

Subject requirements, level and grade

A UK first or upper second class honours degree or equivalent in a degree that excludes Mathematics and Physics and Computer Science.

Evidence of competence in written and spoken English if the applicant's first language is not English:

- minimum TOEFL requirement is 102 IBT (no element under 23)
- minimum IELTS score is 7.0 overall with no element under 6.0 or equivalent

English Language requirements

Please check requirements for your subject and level of study (www.durham.ac.uk/learningandteaching.handbook/1/3/3/)
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How to apply

www.durham.ac.uk/postgraduate/apply

Fees and Funding

Full Time Fees

EU Student	£24,900.00 per year
Home Student	£10,500.00 per year
Island Student	£10,500.00 per year
International non-EU Student	£24,900.00 per year

The tuition fees shown are for one complete academic year of full time study, are set according to the academic year of entry, and remain the same throughout the duration of the programme for that cohort **(unless otherwise stated)**.

Please also check costs for colleges and accommodation (www.durham.ac.uk/postgraduate/accommodation/costs/).

Scholarships and funding

www.durham.ac.uk/postgraduate/finance

Open days and visits

Pre-application open day

www.durham.ac.uk/postgraduate/visit

Overseas Visit Schedule

www.durham.ac.uk/international/office/meetus

Postgraduate Visits

PGVI or
www.durham.ac.uk/postgraduate/visit/

Department Information

Natural Sciences

Overview

Website

www.durham.ac.uk/science.faculty/mds/