DATA SCIENCE AND MACHINE LEARNING MSc / 2019/20 ENTRY

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Data Science and Machine Learning MSc /

Data Science brings together computational and statistical skills and machine learning for data-driven problem solving. This rapidly expanding area includes deep learning, large-scale data analysis and has applications in e-commerce, search/information retrieval, natural language modelling, finance, bioinformatics and related areas in artificial intelligence.

**Degree summary**

The programme comprises core machine learning methodology and an introduction to statistical science, combined with a set of more specialised and advanced options covering computing and statistical modelling. Projects are offered both within UCL Computer Science and from a range of industry partners.

- UCL received the highest percentage (96%) for quality of research in Computer Science and Informatics in the UK's most recent Research Excellence Framework (REF2014).
- UCL Computer Science staff have research interests ranging from foundational machine learning and large-scale data analysis to commercial aspect of business intelligence. Our extensive links to companies provide students with opportunities to carry out the research project with an industry partner.
- The department also enjoys strong collaborative relationships across UCL; exposure to interdisciplinary research spanning UCL Computer Science and UCL Statistical Science will provide students with a broad perspective of the field. UCL is home to regular machine learning masterclasses and big data seminars.

The programme is delivered though a combination of lectures, seminars, class discussions and project supervision. Student performance is assessed through a combination of unseen written examination, coursework (much of which involves programming and/or data analysis), practical application, and the research project.

**Degree structure**

Mode: Full-time: 1 year

Location: London, Bloomsbury

Students undertake modules to the value of 180 credits. The programme consists of three compulsory modules (45 credits), two to three optional modules (30 to 45 credits), two to three elective modules (30 to 45 credits) and a dissertation (60 credits).

Please note that the list of modules given here is indicative. This information is published a long time in advance of enrolment and module content and availability is subject to change.

**COMPULSORY MODULES**

- Applied Machine Learning (15 credits)
- Introduction to Machine Learning (15 credits)
- Introduction to Statistical Data Science (15 credits)

**OPTIONAL MODULES**

Students must choose 30 to 45 credits from the optional modules, and 30 to 45 credits from elective modules.

- Options (choose 30 to 45 credits)
- Advanced Deep Learning and Reinforcement Learning (15 credits)
- Birkbeck College: Cloud Computing (15 credits)
- Information Retrieval and Data Mining (15 credits)
- Introduction to Deep Learning (15 credits)
- Machine Vision (15 credits)
- Multi-agent Artificial Intelligence (15 credits)
- Statistical Natural Language Processing (15 credits)
- Electives (choose 30 to 45 credits)
- Affective Computing and Human-Robot Interaction (15 credits)
- Applied Bayesian Methods (15 credits)
- Bioinformatics (15 credits)
- Computational Modelling for Biomedical Imaging (15 credits)
- Decision and Risk (15 credits)

Please note: the availability and delivery of modules may vary, based on your selected options as all choices are subject to timetabling constraints

**DISSERTATION/RESEARCH PROJECT**

All students undertake an independent research project which culminates in a dissertation of 10,000-12,000 words.
Your career

Data science professionals are increasingly sought after as the integration of statistical and computational analytical tools becomes more essential to organisations. This is a very new degree and information on graduate destinations is not currently available. However, MSc graduates from across the department frequently find roles with major tech and finance companies including:

- Google Deepmind
- Microsoft Research
- Dunnhumby
- Index Ventures
- Cisco
- Deutsche Bank
- IBM
- Morgan Stanley

Employability

Students gain a thorough understanding of the fundamentals required from the best practitioners, and the programme’s broad base enables data scientists to adapt to rapidly evolving goals.
Entry requirements

A minimum of an upper second-class Bachelor’s degree in a quantitative discipline (such as mathematics, computer science, engineering, physics or statistics) from a UK university or an overseas, qualification of an equivalent standard. Knowledge of mathematical methods including linear algebra and calculus at first-year university level is required. Depending on the modules selected, students undertake assignments that contain programming elements and prior experience in a high-level programming language (R/matlab/python) is useful. Relevant professional experience will also be taken into consideration.

English language proficiency level

If your education has not been conducted in the English language, you will be expected to demonstrate evidence of an adequate level of English proficiency.

The level of English language proficiency for this programme is: Good.

Information about the evidence required, acceptable qualifications and test providers is provided at: www.ucl.ac.uk/graduate/english-requirements

Your application

When we access your application we would like to learn:

- why you want to study Data Science at graduate level
- why you want to study Data Science at UCL
- what particularly attracts you to the chosen programme
- how your academic and professional background meets the demands of this challenging programme
- where you would like to go professionally with your degree

Together with essential academic requirements, the personal statement is your opportunity to illustrate whether your reasons for applying to this programme match what the programme will deliver.

There is an application processing fee for this programme of £75 for online applications and £100 for paper applications. Further information can be found at: www.ucl.ac.uk/prospective-students/graduate/taught/application.

FEES AND FUNDING 2019/20 ENTRY

// UK: £13,340 (FT)
// EU: £13,340 (FT)
// Overseas: £28,410 (FT)

The tuition fees shown are for the year indicated above. Fees for subsequent years may increase or otherwise vary. Further information on fee status, fee increases and the fee schedule can be viewed on the UCL Students website.

All full time students are required to pay a fee deposit of £2,000 for this programme. All part-time students are required to pay a fee deposit of £1,000.

Four MSc Scholarships, worth £4000 each, are made available by the Department of Computer Science to UK/EU offer holders with a record of excellent academic achievement. The closing date is 30 June 2019. For more information, please see the department pages.

Full details of funding opportunities can be found on the UCL Scholarships website: www.ucl.ac.uk/scholarships

APPLICATION DEADLINE

All applicants: 14 June 2019

Details on how to apply are available on the website at: www.ucl.ac.uk/graduate/apply

CONTACT

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EU referendum

For up-to-date information relating to specific key questions following the UK’s decision to leave the EU, please refer to www.ucl.ac.uk/brexit