MACHINE LEARNING MSc / 2018/19 ENTRY

www.ucl.ac.uk/graduate/compsci
The Machine Learning MSc at UCL is a truly unique programme and provides an excellent environment to study the subject. It introduces the computational, mathematical and business views of machine learning to those who want to upgrade their expertise and portfolio of skills in this domain.

**Degree summary**

Students develop an understanding of the principles underlying the development and application of new techniques in this area, alongside an awareness of, and ability to analyse the range and scope of algorithms and approaches available, and design, develop and evaluate appropriate algorithms and methods for new problems and applications.

UCL Computer Science is recognised as a world leader in teaching and research, and our Master’s programmes have some of the highest employment rates and starting salaries.

We take an experimental approach to our subject, enjoy the challenge and opportunity of entrepreneurial partnerships and place a high value on our extensive range of industrial collaborations.

This MSc is one of the few leading Master’s programmes entirely dedicated to machine learning. It combines a rigorous theoretical academic framework along with specific knowledge of a variety of application fields to fast-track your commercial career or to prepare for PhD research.

The programme is delivered through a combination of lectures, seminars, class discussions and project supervision. Student performance is assessed though 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 one core module (15 credits), five to seven optional modules (75 to 105 credits), up to two modules (30 credits) from electives, and a research project (60 credits).

**CORE MODULES**

- Supervised Learning (15 credits)

**OPTIONAL MODULES**

- Students must choose 15 credits from Option Group One and a minimum of 60 credits from Option Group Two. Students must choose a further 30 credits from either Option Group Two or approved electives.

- Option Group One (choose 15 credits)
  - Graphical Models (15 credits)
  - Probabilistic and Unsupervised Learning (15 credits)
  - Option Group Two (choose 60 to 90 credits)
  - Advanced Deep Learning and Reinforcement Learning (15 credits)
  - Advanced Topics in Machine Learning (15 credits)
  - Affective Computing and Human-Robot Interaction (15 credits)

- Option Group Two (choose 60 to 90 credits)
  - Applied Machine Learning (15 credits)
  - Approximate Inference and Learning in Probabilistic Models (15 credits)
  - Bioinformatics (15 credits)
  - Information Retrieval and Data Mining (15 credits)
  - Introduction to Deep Learning (15 credits)
  - Machine Vision (15 credits)

- Machine Vision (15 credits)

- Programming and Mathematical Methods for Machine Learning (15 credits)

- Please note: the availability and delivery of optional modules may vary, depending on your selection.

- Students may select up to 30 credits from elective modules

- A list of acceptable elective modules is available on the departmental website.

**DISSERTATION/REPORT**

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

Graduates from this programme have an excellent employment record. Substantial sectors of UK industry, including leading, large companies already make extensive use of intelligent systems techniques in the course of their business activities, and the UK has a number of very successful developers and suppliers of the technology. Students also benefit from strong corporate and academic connections within the UCL Computer Science alumni network.

Graduates have taken machine learning research degrees in domains as diverse as robotics, music, psychology, and bioinformatics at the Universities of Basel, Cambridge, Edinburgh, Nairobi, Oxford and at UCL. Graduates have also found positions with multinational companies such as BAE Systems and BAE Detica.

Recent career destinations* include:
- Computer Vision Engineer, ZVR
- Data Analyst / Data Scientist, Deloitte Data Analytics Group
- Programmatic Yield Manager and Data Analyst, eBay
- Data Scientist, dunnhumby
- PhD in Computer Science, UCL

Employability

Scientific experiments and companies now routinely generate vast databases and machine learning and statistical methodologies are core to their analysis. There is a considerable shortfall in the number of qualified graduates in this area internationally. Machine Learning graduates have been in high demand for PhD positions across the sciences. In London there are many companies looking to understand their customers better who have hired our graduates. Similarly graduates now work in companies in Germany, Iceland, France and the US, amongst other places, in large-scale data analysis. The finance sector has also hired several graduates recently.

* Careers data is taken from the ‘Destinations of Leavers from Higher Education’ survey undertaken by HESA looking at the destinations of UK and EU students in the 2013-2015 graduating cohorts six months after graduation.
Entry requirements

A minimum of an upper second-class UK Bachelor’s degree in a highly quantitative subject such as computer science, mathematics, electrical engineering or the physical sciences, or an overseas qualification of an equivalent standard. Relevant work experience may also be taken into account. Additionally, candidates must be comfortable with undergraduate mathematics in areas such as linear algebra and calculus.

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

Students are advised to apply as early as possible due to competition for places. Those applying for scholarship funding (particularly overseas applicants) should take note of application deadlines.

When we assess your application we would like to learn:

II why you want to study Machine Learning at graduate level
II why you want to study Machine Learning at UCL
II what particularly attracts you to this programme
II how your academic and professional background meets the demands of this programme
II what programming experience you have
II 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.

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

FEES AND FUNDING 2018/19 ENTRY

II UK: £12,950 (FT), EN/A (PT)
II EU: £12,950 (FT), EN/A (PT)
II Overseas: £26,670 (FT), EN/A (PT)

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 Current 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 2018. 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: 15 June 2018

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/eu-referendum