Data Science BSc

This programme provides a comprehensive training in the statistical basis of data science, along with a solid grounding in the computing skills and algorithmic reasoning necessary for modern data analysis.

### Key information

**Programme starts**
September 2021

**Location**
London, Bloomsbury

### Degree structure

In each year of your degree you will take a number of individual modules, normally valued at 15 or 30 credits, adding up to a total of 120 credits for the year. Modules are assessed in the academic year in which they are taken. The balance of compulsory and optional modules varies from programme to programme and year to year. A 30-credit module is considered equivalent to 15 credits in the European Credit Transfer System (ECTS).

The programme does not assume any previous exposure to probability, statistics or computer science. During the course of your degree, theoretical studies are balanced with an emphasis on practical work, including the training on at least two programming languages, and realistic illustration of theoretical concepts.

The first year is designed to provide all students with a firm foundation in these subjects, while deepening the knowledge and understanding of those students with some previous exposure to the subject areas: you will study mathematics, statistics and computing, which will prepare you for increased specialisation in data science in years two and three.

The second and third years build on this foundation through further compulsory modules on core topics in probability theory, statistical inference and algorithms. Specialist areas of application, such as in medicine and commerce, are mostly introduced as third year options, although an introductory module in applied science may be taken as early as the first year.

In the final year, there is considerable flexibility to bias your programme towards either the more mathematical or applied aspects of the subject. In particular, about one-quarter of your work will be on a project involving extensive research supervised by a member of staff within the Department of Statistical Science.

Upon successful completion of credits, you will be awarded a BSc (Hons) in Data Science.

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.

### Degree benefits

// The degree programme is aimed at providing the core capabilities of a data scientist who will be able to engage with a variety of disciplines, from health research, to the digital economy and finance, natural sciences and more.

// During the degree programme, students will be exposed to a mix of multidisciplinary modules including in the applied sciences and its data-analytic aspects.

// The department offers a friendly and supportive atmosphere, where small-group teaching and personal attention are available for all students.

// The structure of the programme encourages hands-on assignments and an interaction with disciplines outside the department.

---

**YEAR ONE**

**Compulsory module(s)**

// Database Systems A
// Calculus and Linear Algebra
// Calculus in Several Dimensions
// Introduction to Probability and Statistics
// Further Probability and Statistics
// Introduction to Practical Statistics
// Programming Fundamentals

**Optional modules**

// You must select the remaining credits from a wide range of undergraduate modules, e.g. Information Studies, Management, Mathematics, Science & Technology Studies.
YEAR TWO

Compulsory module(s)
- Science and Ethics
- Advanced Linear Algebra
- Probability and Inference
- Linear Models and the Analysis of Variance
- Algorithms and Data Structures
- Computing for Practical Statistics

Optional modules
You will select your remaining credits from a wide range of optional modules, which must include one or two of the following:
- Mathematical Analysis
- Introduction to Applied Probability
- Social Statistics
- Optimisation Algorithms in Operational Research

FINAL YEAR

Compulsory module(s)
- Project
- Statistical Machine Learning
- Inference at Scale

Optional modules
You will select your remaining credits from a wide range of optional modules, which must include at least one and no more than four of the following:
- Numerical Methods
- Statistical Inference
- Forecasting
- Decision and Risk
- Factorial Experimentation
- Stochastic Methods in Finance I
- Medical Statistics I
- Medical Statistics II
- Selected Topics in Statistics
- Stochastic Methods in Finance II
- Bayesian Methods in Health Economics
- Quantitative Modelling of Operational Risk and Insurance Analytics

Your learning
We employ a variety of teaching methods which includes lectures, small-group tutorials, problem classes and computer workshops and e-learning. Lecturers have regular 'office hours' during which you are welcome to come and ask questions about the programme material.

Assessment
Most Statistical Science modules employ a combination of end-of-year written examination and coursework to assess your subject-specific knowledge and academic skills, although some modules are entirely coursework based.

Accessibility
Details of the accessibility of UCL buildings can be obtained from AccessAble. Further information can also be obtained from the UCL Student Support & Wellbeing team.

Your career
As a graduate of the programme, you should be able to proceed directly to a post as a data scientist in industry, commerce or government. The skills you will acquire could also be applied to the founding or management of businesses relating to a broad set of data analytic services.

The programme is also designed to provide you with a preparation for postgraduate study in statistics, machine learning and other specialised fields in applied data science.
Entry requirements

**A LEVELS**

**Standard Offer:** A’AA. A* in Mathematics required. Further Mathematics preferred. If you are studying both then the A* can be in either subject.

**GCSE:** English Language and Mathematics at grade C or 5. For UK-based students, a grade C or 5 or equivalent in a foreign language (other than Ancient Greek, Biblical Hebrew or Latin) is required. UCL provides opportunities to meet the foreign language requirement following enrolment, further details at: www.ucl.ac.uk/ug-reqs.

**Contextual Offer:** A’BB. A* in Mathematics required. Further Mathematics preferred. If you are studying both then the A* can be in either subject.

**GCSE:** English Language and Mathematics at grade C or 5. For UK-based students, a grade C or 5 or equivalent in a foreign language (other than Ancient Greek, Biblical Hebrew or Latin) is required. UCL provides opportunities to meet the foreign language requirement following enrolment, further details at: www.ucl.ac.uk/ug-reqs.

**IB DIPLOMA**

**Standard Offer:** 39 points. A score of 19 points in three higher level subjects including grade 7 in Mathematics, with no score lower than 5.

**Contextual Offer:** 36 points. A score of 17 points in three higher level subjects including grade 7 in Mathematics, with no score lower than 5.

**CONTEXTUAL OFFERS – ACCESS UCL SCHEME**

As part of our commitment to increasing participation from underrepresented groups, students may be eligible for a contextual offer as part of the Access UCL scheme. For more information see www.ucl.ac.uk/prospectus.

**OTHER QUALIFICATIONS**

UCL considers a wide range of UK and international qualifications for entry into its undergraduate programmes. Full details are given at: www.ucl.ac.uk/otherquals.

**UNDERGRADUATE PREPARATORY CERTIFICATES**

(Undergraduate foundation courses)

UCL Undergraduate Preparatory Certificates (UPCs) are intensive one-year foundation courses for international students of high academic potential who are aiming to gain access to undergraduate degree programmes at UCL and other top UK universities.

Typical UPC students will be high achievers in a 12-year school system which does not meet the standard required for direct entry to UCL.

For more information see: www.ucl.ac.uk/upc.

TUITION FEES

The fees indicated are for undergraduate entry in the 2021/22 academic year. The UK fees shown are for the first year of the programme at UCL only. Fees for future years may be subject to an inflationary increase. The Overseas fees shown are the fees that will be charged to 2021/22 entrants for each year of study on the programme, unless otherwise indicated below.

// UK: £TBC (2020/21 - see above)

// Overseas: £TBC (2020/21 - see above)

Full details of UCL’s tuition fees, tuition fee policy and potential increases to fees can be found on the UCL Students website.

ADDITIONAL COSTS

This programme does not have any additional costs outside of purchasing books or stationery, printing, thesis binding or photocopying.

A guide including rough estimates for these and other living expenses is included on the UCL Fees and funding pages. If you are concerned by potential additional costs for books, equipment, etc., please get in touch with the relevant departmental contact (details given on this page).

FUNDING

The department offers an undergraduate scholarship, the EJ Gumbel Scholarship.

Various funding options are available, including student loans, scholarships and bursaries. UK students whose household income falls below a certain level may also be eligible for a non-repayable bursary or for certain scholarships. Please see the Fees and funding pages for more details.

CONTACT

Dr Elinor Jones

Email: undergraduate-admissions@ucl.ac.uk

Telephone: +44 (0)20 3370 1215

Department: Statistical Science

UK withdrawal from the EU

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