MATHEMATICS AND PHYSICS
MSci /
UCAS CODE: GF1H
2020 ENTRY

www.ucl.ac.uk/prospectus
Mathematics and Physics MSci

This MSci offers an additional year of study on top of the Mathematics and Physics BSc, during which students have the opportunity to specialise further by taking more advanced modules and completing a major project.

Key information

Programme starts
September 2020

Location
London, Bloomsbury

Degree benefits

// The MSci programme provides both a broad-based training and in-depth study, particularly suitable if you wish to pursue research in mathematics or physics.

// Highly regarded UCL Mathematics is home to world-leading researchers in a wide range of fields, especially geometry, spectral theory, number theory, fluid dynamics and mathematical modelling.

// Three of the six British winners of the Fields medal (the mathematician’s equivalent of the Nobel Prize) have associations with the department.

// UCL Physics & Astronomy was ranked 5th and UCL Mathematics 6th in the most recent QS World University Rankings by Subject 2017.

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).

In the first and second years of the programme you will cover a balanced selection of modules in both UCL Mathematics and UCL Physics & Astronomy. You will take a selection of designated modules in the third year and undertake a major project in your fourth year, which will include a substantial piece of written work and a presentation. Students taking this programme do not have to do any practical work, although this is possible if so desired.

This programme is offered as a three-year BSc or a four-year MSci degree. The first two years of the programme are identical, and students are advised to apply for the MSci degree in the first instance, as it is possible to transfer to the BSc during the first three years.

YEAR ONE

Core or compulsory module(s)

- Mathematics modules:
  - Algebra for Joint Honours Students
  - Analysis 1
  - Mathematical Methods 1
  - Mathematical Methods 2

- Physics and astronomy modules:
  - Classical Mechanics
  - Atoms, Stars and the Universe
  - Thermal Physics
  - Waves, Optics and Acoustics

Optional modules

- All first year modules are compulsory.

YEAR TWO

Core or compulsory module(s)

- Mathematics modules:
  - Analysis 3: Complex Analysis
  - Fluid Mechanics
  - Mathematical Methods 3

- Physics and astronomy modules:
  - Atomic and Molecular Physics
  - Electricity and Magnetism
  - Quantum Physics
  - Statistical Thermodynamics

Optional modules

- You will select one of the following mathematics modules:
  - Analytical Dynamics
  - Mathematical Methods 4
YEAR THREE

Core or compulsory module(s)

- All third-year modules are optional. Currently available mathematics options are described on the UCL Mathematics website.

Optional modules

- You will select 1.5 credits of third-year designated mathematics options, plus three of the following (1.5 credits):
  - Electromagnetic Theory
  - Nuclear and Particle Physics
  - Quantum Mechanics
  - Solid State Physics
- You will also select:
  - 0.5 credits of third-year mathematics options or suitable third-year physics options.
  - 0.5 credits of third-year mathematics options, suitable third-year physics options or an approved outside option.

FINAL YEAR

Core or compulsory module(s)

- All final year modules are optional.

Optional modules

- You will select:
  - 1.0 credit of fourth-year mathematics options
  - 1.0 credit of suitable fourth-year physics options
  - 0.5 credits of fourth-year mathematics/physics options or an approved outside option
  - Plus either:
    - Physics Project (1.5 credits)
    - Project in Mathematics (1.0 credit) together with 0.5 credits of mathematics or physics options

Your learning

Teaching is mainly carried out through lectures and small-group tutorials. Problem classes allow you to exercise the skills you have learned. In addition, an 'office hours' system for each programme allows you to meet with tutors on a one-to-one basis to review parts of the degree that you find interesting or need clarifying. A Student Mentor scheme runs in the department offering support and advice to first-years.

Assessment

Most modules are assessed by two-hour written modules in the third term, with a small element (10%) of coursework assessment.

Your career

We aim to develop your skills in mathematical reasoning, problem-solving and accurate mathematical manipulation. You will also learn to handle abstract concepts and to think critically, argue logically and express yourself clearly.

A mathematics degree is highly valued by employers due to the skills in logical thinking, analysis, problem-solving and, of course, numeracy, that it develops.

Your application

Application for admission should be made through UCAS (the Universities and Colleges Admissions Service). Applicants currently at school or college will be provided with advice on the process; however, applicants who have left school or who are based outside the United Kingdom may obtain information directly from UCAS.

In addition to academic requirements, we expect you to demonstrate an understanding and enjoyment of the subject beyond the examined syllabus, through your reading and involvement in problem-solving activities. Evidence of your curiosity and perseverance in tackling puzzles, and your enjoyment of logical and abstract thinking, should be shown in your application.
**Entry requirements**

**A LEVELS**

**Standard Offer:** A*A*A with A*A* in Maths and Further Maths and A in Physics, or A*AA with A* in Maths and Further Maths and A in Physics, any order, and a 2 in any STEP Paper or a Distinction in the Mathematics AEA, A*A* with A*A* in Maths and Further Maths and A in Physics, or A*AA with A*A in Maths and Further Maths and A in Physics, any order, and a 2 in any STEP Paper or a Distinction in the Mathematics AEA.


**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 20 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics, or 19 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics and a 2 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Contextual Offer:** 39 points. A score of 19 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics, with no score below 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/ug-reqs

**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 (International 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 2020/21 academic year. The UK/EU 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 2020/21 entrants for each year of study on the programme, unless otherwise indicated below.

- **UK & EU:** £9,250 (2020/21)
- **Overseas:** £25,110 (2020/21)

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

**FUNDING**

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 Robert Bowles

**Email:** admissions@math.ucl.ac.uk
**Telephone:** +44 (0)20 7679 3501
**Department:** Mathematics

**Brexit**

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

**Disclaimer**

This information is for guidance only. It should not be construed as advice nor relied upon and does not form part of any contract. For more information on UCL’s degree programmes please see the UCL Undergraduate Prospectus at www.ucl.ac.uk/prospectus