ASTROPHYSICS MSci / UCAS CODE: F511 2018 ENTRY

www.ucl.ac.uk/prospectus/physics
Astrophysics MSci

This four-year programme offers an additional year of study on top of the Astrophysics BSc, during which students have the opportunity to specialise further by taking advanced optional modules, and undertaking a research project.

Key information

Programme starts
September 2018

Location
London, Bloomsbury

Degree benefits

// The programme is accredited by the Institute of Physics (IOP) and includes the very latest developments and discoveries in the field, based on our highly rated research.

// Collaborative links with both industry and international research laboratories provide insight into the practical application of your studies.

// You will undertake practical work at UCL’s University of London Observatory (ULO) and benefit from our close association with the Royal Astronomical Society.

// One third-year option includes a field trip to the Observatoire de Haute Provence in France.

Research Excellence Framework (REF) 2014

The Research Excellence Framework, or REF, is the system for assessing the quality of research in UK higher education institutions. The 2014 REF was carried out by the UK’s higher education funding bodies, and the results used to allocate research funding from 2015/16.

// 90% rated 4* (“world-leading”) or 3* (“internationally excellent”)

Learn more about the scope of UCL’s research, and browse case studies, on our Research Impact website.

Accreditation

This programme is accredited by the Institute of Physics. Holders of accredited degrees can follow a route to Institute of Physics membership and the Chartered Physicist (CPhys) professional qualification. Graduates of accredited Integrated Master’s (MPhys or MSci) degrees have fulfilled the educational requirements for CPhys status, while graduates of accredited Bachelor’s (BSc) degrees have partially fulfilled these requirements.

Degree structure

In each year of your degree you will take a number of individual modules, normally valued at 0.5 or 1.0 credits, adding up to a total of 4.0 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 1.0 credit is considered equivalent to 15 credits in the European Credit Transfer System (ECTS).

Core modules in the first two years provide a grounding in mathematics and classical and quantum physics. You will also undertake modules which build up an increasing exposure to topics in astronomy and astrophysics. This starts in the first year with core modules in Physics of the Universe and Practical Astronomy. This is followed in the second year by Astrophysical Processes: Nebulae to Stars and Practical Astrophysics, leading into core third-year modules in Interstellar Physics, Physical Cosmology, and Astronomical Spectroscopy. The third year also provides for optional modules to further enhance and enrich your knowledge of astrophysics topics.

The fourth year comprises a compulsory research project in astrophysics, and a further five half-credit modules, generally chosen from subjects in the relevant degree speciality. A wide range of modules is available, including some taught by staff from other University of London colleges.

This programme is offered both as a three-year BSc and a four-year MSci, with common structures and subjects for the first two years. However, the additional fourth year of the MSci programme allows for a greater depth of study and we recommend you apply for an MSci initially, as this keeps more options open.

YEAR ONE

Core or compulsory module(s)

// Classical Mechanics
Mathematical Methods I
Mathematical Methods II
Practical Skills 1A
Practical Skills 1C
Physics of the Universe
Thermal Physics
Waves, Optics and Acoustics

Optional modules

// All first-year modules are compulsory.

YEAR TWO

Core or compulsory module(s)

// Astrophysical Processes: Nebulae to Stars
Electrology and Magnetism
Mathematical Methods III
Physics of the Solar System
Practical Astrophysics 2A
Quantum Physics
Statistical Thermodynamics

Optional modules

// One optional module from the following list:
Astrobiology
Environmental Physics
Mathematics for Physics and Astronomy
Data 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.

YEAR THREE

Core or compulsory module(s)
- Astronomical Spectroscopy
- Interstellar Physics
- Physical Cosmology
- The Physics of Stars

Optional modules
- Either:
  - Experimental Physics
  - Practical Astronomy 1 - Techniques
- Plus one of the following:
  - Group Project
  - Practical Astronomy 2 - Applications
  - Practical Astronomy 3 - Field Trip
- You will also select 1.0 credit from a wide range of astrophysics options. Options may include:
  - Astrobiology
  - Electromagnetic Theory
  - Energy and Climate
  - Nuclear and Particle Physics
  - Physics of Oceans, Ice Sheets and Climate (1.0 credits)
  - Physics of the Earth
  - Quantum Mechanics
  - Scientific Computing Using Object Oriented Languages
  - Theory of Dynamical Systems

FINAL YEAR

Core or compulsory module(s)
- Astrophysics Project

Optional modules
- You will select 2.5 credits from a wide range of optional modules.

Your learning

Teaching is delivered through lectures, laboratory (and as appropriate, observatory) practical sessions, and supervised problem-solving tutorials. These tutorials are designed to deal with lecture-based questions, enlarge on topics addressed in lectures, and allow clarification and in-depth discussion of new concepts.

Assessment

Assessment will normally involve end-of-year examinations, and an element of assessed coursework. For practical work you will be continuously assessed.

Your career

Your scientific training will equip you with an understanding of mathematics, and of physical principles and techniques, as well as transferable skills in analysis, rational argument and innovative problem-solving. Surveys by the IOP indicate that physicists' versatility is welcomed by a wider range of professions than any other subject.

Around half our graduates choose to pursue further study for an MSc or PhD. A PhD opens up the possibility of an academic or research career in a university or research institute. Alternatively, like many of our graduates, you may consider employment in research, design, development, computing, finance, marketing and teaching, among others.

First career destinations of recent graduates (2013-2015) of Astrophysics programmes at UCL include:
- Full-time student, PhD in Physics and Astronomy at UCL
- Physicist, Dstl (Defence Science & Technology Laboratory)
- Assistant Auditor, National Audit Office
- Technology Analyst, Barclays
- Full-time student, PhD in Astronomy at the University of Cambridge

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 the subjects and grades specified in the qualifying examinations, we are also looking for evidence of self-motivation and an enthusiastic interest in the subject. This may be demonstrated through paid or voluntary work experience, academic project work, or your interests and hobbies beyond the school curriculum.

Your application will be carefully assessed based on your UCAS form and reference. If you are made an offer and based in the UK within a reasonable travelling distance of UCL, you will be invited to a compulsory applicant open day. This will include presentations, a tour of facilities and an opportunity to meet current students and staff members.

Full-time student, PhD in Physics and Astronomy at UCL
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Entry requirements

A LEVELS
Grades
AAA
Subjects
Mathematics and Physics required.

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
Points
38 overall.
Subjects
A total of 18 points in three higher level subjects including Mathematics and Physics at grade 6, with no score below 5.

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)
The 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 2018/19 academic year. The UK/EU fees shown are for the first year of the programme at UCL only. The Overseas fees shown are the fees that will be charged to 2018/19 entrants for each year of study on the programme, unless otherwise indicated below.

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<th>UK &amp; EU: £9,250 (2018/19)</th>
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<td>Overseas: £25,960 (2018/19)</td>
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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
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Telephone: +44 (0)20 7679 7246
Department: Physics and Astronomy

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

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