Chemical Physics MSci /

This four-year programme offers an additional year on top of the Chemical Physics BSc, providing scope for greater in-depth study in advanced topics such as quantum mechanics and computational chemistry. It is ideal if you intend to pursue a science-based career.

Key information

Programme starts
September 2018

Location
London, Bloomsbury

Degree benefits

// Consistently regarded as one of the best chemistry departments in the UK, we offer you an excellent education with high standards of teaching.

// You will benefit from our outstanding research profile as you are taught by lecturers who are experts in a wide range of chemistry-related fields.

// The department has a rich history at the intersection of chemistry and physics, and is home to UCL’s Centre for Computational Chemistry and the Centre for Cosmic Chemistry and Physics.

// We offer access to state-of-the-art facilities, enhanced by our strong affiliation to other centres of excellence such as the London Centre for Nanotechnology.

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.

// 94% 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.

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).

Chemical Physics is offered either as a three-year BSc programme or as a four-year MSci. Modules are identical for the first two years of study, so you can defer which to opt for until the end of your second year. We advise you, however, to select the four-year MSci programme initially as this gives you the most control over your plans.

Although the Chemical Physics MSci is based on core chemistry modules, there is more scope to develop skills in physics and theoretical aspects of chemistry, and either inorganic chemistry or organic chemistry is omitted after the first year in favour of mathematics, physics and specialist chemical physics modules.

In year one all modules are compulsory, and in year two you will take a combination of compulsory modules together with a number of optional Chemistry modules and further modules from outside the department. In the third year you take further compulsory and optional modules including a core literature project and extended laboratory classes.

In the final year of the MSci, you will undertake a chemical research project and optional modules, allowing you to specialise in the chemistry field of your choice.

YEAR ONE

Core or compulsory module(s)

// Basic Inorganic Chemistry
Basic Organic Chemistry
Basic Physical Chemistry
Introduction to Chemical Principles
Mathematics for Science 1
Mathematics for Science 2
Physics of the Universe

Optional modules

// All first year modules are compulsory.

YEAR TWO

Core or compulsory module(s)

// Chemical Dynamics
Introductory Classical Mechanics
Mathematical Methods in Chemistry
Principles of Physical Chemistry

Optional modules

// You will select 1.0 credit of either inorganic chemistry or organic chemistry options, plus 0.5 credits from further Physics or Mathematics options.
YEAR THREE
Core or compulsory module(s)

- Advanced Topics in Physical Chemistry
- Literature Project

Optional modules

- Either Advanced Inorganic Chemistry or Advanced Organic Chemistry
- Plus either Concepts in Computational and Experimental Chemistry or Numerical and Analytical Methods
- You will also select 1.0 credit of advanced chemistry, mathematics or physics options, or from other approved undergraduate modules. Chemistry options may include:
  - Biological Chemistry/Biological Macromolecules
  - Concepts in Computational and Experimental Chemistry
  - Inorganic Rings, Chains and Clusters
  - Organometallic Chemistry
  - Principles of Drug Design
  - Structural Methods in Modern Chemistry

FINAL YEAR
Core or compulsory module(s)

- Advanced Chemical Research Project

Optional modules

- Either Numerical and Analytical Methods or Topics in Quantum Mechanics
- Plus 1.5 credits from a wide range of advanced chemistry, physics or mathematics options, or from other approved undergraduate modules. Chemistry options may include:
  - Biological Chemistry/Biological Macromolecules
  - Concepts in Computational and Experimental Chemistry
  - Inorganic Rings, Chains and Clusters
  - Numerical and Analytical Methods
  - Pathways, Intermediates and Function in Organic Chemistry
  - Organometallic Chemistry
  - Structural Methods in Modern Chemistry

Your learning

Your learning will combine lectures, practical classes and group workshops. In addition you will attend tutorials in groups of four to six students which provide specialised support for the core modules.

Assessment

Modules usually involve at least two methods of assessment; coursework (problem sheets, essays or poster presentations), an examination, or lab classes. Feedback, such as face-to-face marking in laboratories, is always provided. Your final-year project will be assessed through a written report, a presentation and an oral examination.

Your career

As a UCL Chemistry graduate you will have developed both discipline-based and highly sought after analytical skills, for example in logical thought and numeracy.

On completion of your degree you will have the obvious option of pursuing a career within the chemical industry. This is recognised as one of the most exciting and successful contributors to the UK economy, for example in the pharmaceutical, biotechnology and nanotechnology sectors.
Entry requirements

A LEVELS

Grades
AAA

Subjects
Chemistry, Mathematics and Physics required.

GCSE

English Language at grade C plus Mathematics at grade B. For UK-based students, a grade C 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
36 overall.

Subjects
A total of 18 points in three higher level subjects including Chemistry, Mathematics and Physics, 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 2017/18 academic year and are for the first year of the programme at UCL only. Fees for 2018 entry will appear here as soon as they are available.

/// UK & EU: £9,250 (2017/18 - see below)
/// Overseas: £23,710 (2017/18)

The UK/EU fee quoted above may be subject to increase for the 2018/19 academic year and for each year of study thereafter and UCL reserves the right to increase its fees in line with UK government policy (including on an annual basis for each year of study during a programme). Fees for overseas students may be subject to an annual increase in subsequent years of study by up to 5%.

Please see the full details of UCL’s fees and possible changes on the UCL Current Students website.

FUNDING

UCL Chemistry offers a number of scholarships, including the Bader Bursaries, GSK Bursary, UCL Chemistry Entrance Scholarships and the Kathleen Lonsdale Bursary.

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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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