Medicinal Chemistry MSci

This four-year programme offers an additional year on top of the Medicinal Chemistry BSc, in which students may undertake an advanced research project in fields such as drug design, chemical biology or organic chemistry.

Key information

Programme starts
September 2018

Location
London, Bloomsbury

Degree benefits

Consistently regarded as one of the best chemistry departments in the UK, we maintain a position of international excellence in teaching and research in medicinal chemistry.

Strong links have been developed with the pharmaceutical sector of the industry, and UCL’s strength in medicine and life sciences has led to exciting new areas of research collaboration.

Life sciences are taught throughout the programme ensuring you build up a broad understanding of biological systems to which the chemistry modules are applied.

UCL Chemistry is at the forefront of developments in chemical biology, enabling you to undertake highly relevant research projects both in UCL Chemistry and in associated UCL departments.

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).

This programme is offered either as a three-year BSc or as a four-year MSci. The first two years of study are identical, so you can defer which to opt for until the end of your second year. We advise you to select the four-year MSci initially as this keeps more options open.

The Medicinal Chemistry programmes are quite different from the others offered by the department as the modules are split equally between chemistry and the life sciences. You will take modules in all aspects of chemistry, but organic chemistry is developed to the greatest extent.

Specialist modules such as Principles of Drug Design, and Principles and Methods of Organic Synthesis are compulsory. Compulsory modules are also taken in a number of life sciences including biology, physiology, biochemistry and pharmacology. You will also take a literature project in year three.

The focus of your final year will be an extended research project. As a specialist in medicinal chemistry you will have access to cross-disciplinary projects in fields such as drug design, chemical biology and organic chemistry. Advanced taught modules are available in both chemistry and allied life sciences.

YEAR ONE

Core or compulsory module(s)

- Basic Organic Chemistry
- Cellular and Molecular Biology
- Introduction to Chemical Principles
- Mammalian Physiology

Optional modules

- All first year modules are compulsory.

YEAR TWO

Core or compulsory module(s)

- Further Topics in Biochemistry
- Fundamentals of Inorganic Chemistry
- Introductory Statistical Methods and Computing
- Organic Chemistry
- Physical Chemistry for Medicinal Chemistry and Life Sciences

Optional modules

- All second year modules are compulsory.
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)**

- An Introduction to Research Methods for Medicinal Chemistry
- Literature Project
- Molecular Pharmacology
- Pathways, Intermediates and Function in Organic Chemistry
- Principles of Drug Design
- Principles and Methods of Organic Synthesis

**Optional modules**

- Either:
  - Drug Design and Development
  - Or:
    - Receptor Mechanisms
- Plus 0.5 credits from a wide range of options. Options typically taken by chemistry students include:
  - Biology
  - Human Physiology
  - Introduction to Earth Sciences
  - Introduction to Management
  - Languages
  - Mathematics (further calculus)
  - Physics of the Universe

**FINAL YEAR**

**Core or compulsory module(s)**

- Advanced Chemical Research Project

**Optional modules**

- You will select 2.0 credits from a wide range of advanced chemistry options and other approved undergraduate options. Chemistry options may include:
  - Frontiers in Experimental Physical Chemistry
  - Inorganic Rings, Chains and Clusters
  - Intense Radiation Sources for Chemistry
  - Microstructural Control in Materials Science
  - New Directions in Materials Chemistry
  - Numerical and Analytical Methods
  - Organometallic Chemistry
  - Stereochemical Control in Asymmetric Total Synthesis
  - Structural Methods in Modern Chemistry
  - Synthesis and Biosynthesis of Natural Products
  - Topics in Quantum Mechanics

**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.

First career destinations of recent graduates (2013-2015) of this programme at UCL include:

- Full-time student, PhD in Chemistry at Heriot-Watt University
- Computer Programmer, Founders and Coders
- Graduate Development Chemist, Potter & Moore Innovations Ltd
- Business Analyst, Capita ITPS
- Full-time student, PhD in Physics at Imperial College London

**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.

Together with essential academic requirements, we are looking for strong evidence in your personal statement of your interest in the subject and your understanding of it. These requirements may be evidenced by examples of project work, relevant work experience or, perhaps, through your knowledge of current events involving chemistry. We also look for your ability to communicate clearly in English.

UK-based applicants who demonstrate their potential to meet our academic requirements will be invited to visit UCL for a day. The day will include talks, the opportunity to meet current students and a tour of the department and UCL. You will also attend a university-level lecture.
Entry requirements

A LEVELS
Grades
AAA-AAB

Subjects
Chemistry plus either one, or preferably two from Biology (preferred), Mathematics or Physics.

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
36-38 overall.

Subjects
A score of 17-18 points in three higher level subjects including Chemistry and either Biology (preferred), Mathematics or Physics, with no score lower than 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.

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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