Molecular Modelling and Materials Science MRes

The Molecular Modelling and Materials Science MRes programme provides training in the key area of the application of state-of-the-art computer modelling and experimental characterisation techniques to determine the structure, properties and functionalities of materials and complex molecules.

Degree summary

The programme provides specific training in molecular modelling methods and structure determination and characterisation techniques applicable to the materials sciences, together with tuition in research methods and the use of literature sources. The taught modules cover both specialist scientific topics and general project management and professional skills training relevant to the industrial environment.

UCL Chemistry's interests and research activities span the whole spectrum of chemistry from the development of new drugs to the prediction of the structure of new catalytic materials.

This programme was established by the Engineering and Physical Sciences Research Council in response to the needs of industry for highly qualified research leaders with industrial experience and it provides for significant collaboration between academic institutions and industry.

The programme is delivered through a combination of lectures, tutorials, practical classes and seminars. Assessment is through unseen examination, presentation, coursework and the research project.

Degree structure

Mode: Full-time: 1 year; Part-time: 2 years
Location: London, Bloomsbury

Students undertake modules to the value of 180 credits. The programme consists of two core modules (45 credits), two optional modules (30 credits) and a research project (105 credits).

CORE MODULES
- Students take both modules listed below (45 credits) and submit a research dissertation (105 credits).
- Simulation Methods in Materials Chemistry
- The Scientific Literature

OPTIONAL MODULES
- Students take 2 modules drawn from the following or take one from following and one from UCL postgraduate course worth 15 credits.
- Researcher Professional Development
- Mastering Entrepreneurship
- Transferable Skills for Scientists
- Numerical Methods
- Concepts in Computational and Experimental Chemistry
- Advanced Topics in Inorganic Chemistry
- Inorganic Rings, Chains and Clusters
- Biological Chemistry
- Principles of Drug Design
- Principles and Methods of Organic Synthesis
- Pathways, Intermediates and Function in Organic Chemistry
- Advanced Topics in Physical Chemistry
- New Directions in Materials Chemistry

DISSERTATION/REPORT
- All students undertake an independent research project which culminates in a substantial dissertation of approximately 12,000 to 15,000 words, and an oral presentation.
Your career

This MRes provides the ideal foundation for employment in a range of industries or further doctoral research, with increasing career opportunities in sectors including sustainable energy, catalysis, nanotechnology, biomedical materials and pharmaceuticals.

Recent career destinations* include:

- Pharmaceutical Conference Producer, SMi
- EngD Chemistry, UCL
- PhD Chemistry, Technische Universität Berlin (Technical Universit
- PhD Computational Chemistry, UCL
- Laboratory Demonstrator and Marker, UCL and studying Chemistry, UCL

Employability

The training provided by this program will enable the student to enter into a wide range of fields. Students may continue in academia to complete a PhD or pursue teaching as a profession. Students with the skills obtained during this study are highly sought after by the industrial sector, including IT, sustainable energy, catalysis, nanotechnology, biomedical materials and pharmaceuticals. Students are very likely to be welcome in the financial sector.

* Careers data is 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.
**Entry requirements**

A minimum of an upper second-class Bachelor’s degree in a relevant discipline from a UK university or an overseas qualification of an equivalent standard.

**English language proficiency level**

If your education has not been conducted in the English language, you will be expected to demonstrate evidence of an adequate level of English proficiency.

The level of English language proficiency for this programme is: **Standard**.

Information about the evidence required, acceptable qualifications and test providers is provided at: [www.ucl.ac.uk/graduate/english-requirements](http://www.ucl.ac.uk/graduate/english-requirements)

**Your application**

Students are advised to apply as early as possible due to competition for places. Those applying for scholarship funding (particularly overseas applicants) should take note of application deadlines.

When we assess your application we would like to learn:

- why you want to study for an MRes in Molecular Modelling and Materials Science. Please tell us what has led you to research. What were the enjoyable or difficult aspects of your undergraduate projects? Do you have much experience of laboratory work or computing? What are the skills you most need to acquire?

- why you want to study for an MRes in Molecular Modelling and Materials Science at UCL. The MRes programme is research-oriented (60% in terms of credits). Tell us how you will make the most of this opportunity.

- how your academic background meets the demands of this challenging programme. How well did it prepare you for research? What skills do you want to acquire that will help you in a research career?

- how you anticipate your future career might proceed

Together with essential academic requirements, the personal statement is your opportunity to elaborate on your reasons for applying to this programme and how your interests match what the programme will deliver.

**FEES AND FUNDING 2018/19 ENTRY**

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<th>UK: £5,060 (FT), £2,530 (PT)</th>
<th>EU: £5,060 (FT), £2,530 (PT)</th>
<th>Overseas: £23,540 (FT), £11,760 (PT)</th>
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The tuition fees shown are for the year indicated above. Fees for subsequent years may increase or otherwise vary. Further information on fee status, fee increases and the fee schedule can be viewed on the UCL Current Students website.

Students can be self-funded or find sponsorship from funding agencies such as research councils, the European Union, industry or charities.

There are a number of Graduate School Scholarships and departmental bursaries and prizes available.

Full details of funding opportunities can be found on the UCL Scholarships website: [www.ucl.ac.uk/scholarships](http://www.ucl.ac.uk/scholarships)

**APPLICATION DEADLINE**

All applicants: 27 July 2018

Details on how to apply are available on the website at: [www.ucl.ac.uk/graduate/apply](http://www.ucl.ac.uk/graduate/apply)

**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](http://www.ucl.ac.uk/eu-referendum)