Scientists and engineers are tackling ever more complex problems, most of which do not admit analytical solutions and must be solved numerically. Numerical methods can only play an even more important role in the future as we face even bigger challenges. Therefore, skilled scientific programmers are in high demand in industry and academia and will drive forward much of the future economy.

Degree summary

This programme aims to provide a rigorous formal training in computational science to produce highly computationally skilled scientists and engineers capable of applying numerical methods and critical evaluation of their results to their field of science or engineering. It brings together best practice in computing with cutting-edge science and provides a computing edge over traditional science, engineering and mathematics programmes.

UCL has a global reputation for excellence in research and is committed to delivering impact and innovations that enhance the lives of people in the UK, across Europe and around the world. UCL is consistently placed in the global top 20 across a wide range of university rankings (currently 7th in QS World University Rankings 2018). Furthermore, the Thomson Scientific Citation Index shows that UCL is the second-most highly cited European university and 12th in the world.

Our wide-ranging expertise provides opportunities for groundbreaking interdisciplinary investigation. World-leading experts in the field and students benefit from a programme of distinguished visitors and guest speakers in many scientific seminars. In this way a network of collaborators, mentors and peers is created, which students can access in their future career.

This degree has been designed to balance a professional software development and high performance computing skills with a comprehensive selection of numerical mathematics and scientific subjects, culminating in a scientific computing dissertation project. The dual aspect of a science and computing degree enables students to tackle real-life problems in a structured and rigorous way and produce professional software for their efficient solution.

The programme is delivered through a combination of lectures and hands-on programming and includes a variety of short programming projects, delivered as part of the taught component. Students are encouraged to participate in scientific seminars, for example, weekly seminars at the UCL Centre for Inverse Problems. Assessment is through examinations, assignments, small projects and the dissertation, including a computer programme.

Degree structure

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

One year programme which is also available part-time over two years.

Students undertake modules to the value of 180 credits. The programme consists of six core modules (90 credits), two optional modules (30 credits) and a dissertation/report (60 credits).

Please note that the list of modules given here is indicative. This information is published a long time in advance of enrolment and module content and availability is subject to change.

COMPULSORY MODULES

- Computational and Simulation Methods
- Numerical Methods
- Numerical Optimisation
- Research Computing with C++
- Research Software Engineering with Python
- Techniques of High-Performance Computing

OPTIONAL MODULES

Options include a wide selection of modules across UCL Engineering and UCL Mathematical & Physical Sciences.

DISSERTATION/REPORT

All students undertake an independent research project project which culminates in a dissertation of 20,000 words.
**Your career**

We expect our graduates to take up exciting science and engineering roles in industry and academia with excellent prospects for professional development and steep career advancement opportunities. This degree enables students to work on cutting-edge real-life problems, overcome the challenges they pose and so contribute to advancing knowledge and technology in our society.

**Employability**

Students develop a comprehensive set of skills which are in high demand both in industry and academia: professional software development skills including state-of-the-art scripting and compiled languages; knowledge of techniques used in high-performance computing; understanding and an ability to apply a wide range of numerical methods and numerical optimisation; a deeper knowledge of their chosen science subject; oral and written presentational skills.
Entry requirements

A minimum of an upper second-class Bachelor's degree from a UK university, or an overseas qualification of an equivalent standard, in mathematics, computer science, engineering, physical sciences or a closely related subject. The degree stream must contain at least one university level mathematics course.

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

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 access your application we would like to learn:

- why you want to study Scientific Computing at graduate level
- why you want to study Scientific Computing at UCL
- what particularly attracts you to the chosen programme
- how your academic and professional background meets the demands of this challenging programme
- where you would like to go professionally with your degree

Together with essential academic requirements, the personal statement is your opportunity to illustrate whether your reasons for applying to this programme match what the programme will deliver.

There is an application processing fee for this programme of £75 for online applications and £100 for paper applications. Further information can be found at: www.ucl.ac.uk/prospective-students/graduate/taught/application.

FEES AND FUNDING 2019/20 ENTRY

// UK: £10,150 (FT), £5,100 (PT)
// EU: £10,150 (FT), £5,100 (PT)
// Overseas: £27,040 (FT), £13,750 (PT)

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 Students website.

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

APPLICATION DEADLINE

All applicants: 26 July 2019

Details on how to apply are available on the website at: 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/brexit