PHYSICS AND ENGINEERING IN MEDICINE MSc / 2019/20 ENTRY

www.ucl.ac.uk/graduate/
This programme pathway is designed for students with an interest in the engineering aspects of technology that are applied in modern medicine. Students gain an understanding of the bioengineering principles and practices used in hospitals, industries and research laboratories through lectures, problem-solving sessions, a research project and collaborative work.

**Degree summary**

Students study in detail the engineering and physics principles that underpin modern medicine, and learn to apply their knowledge to established and emerging technologies in medical imaging and patient monitoring. The programme covers the engineering applications across the diagnosis and measurement of the human body and its physiology, as well as the electronic and computational skills needed to apply this theory in practice.

- The spectrum of medical physics activities undertaken in UCL Medical Physics & Biomedical Engineering is probably the broadest of any in the United Kingdom. The department is an internationally leading centre of excellence and students receive comprehensive training in the latest methodologies and technologies from the leading experts in the field.
- The department operates alongside the NHS department which provides the medical physics and clinical engineering services for the UCL Hospitals Trust, as well as undertaking industrial contract research and technology transfer.
- Students have access to a wide range of workshop, laboratory, teaching and clinical facilities in the department and associated hospitals. A large range of scientific equipment is available for research involving nuclear magnetic resonance, optics, acoustics, X-rays, radiation dosimetry and implant development, as well as new biomedical engineering facilities at the Royal Free Hospital and Royal National Orthopaedic Hospital in Stanmore.

The programme is delivered through a combination of lectures, demonstrations, practicals, assignments and a research project. Lecturers are drawn from UCL and from London teaching hospitals including UCLH, St. Bartholomew’s, and the Royal Free Hospital. Assessment is through supervised examination, coursework, the dissertation and an oral examination.

**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 seven core modules (105 credits), one optional module (15 credits), and a research project (60 credits).

A Postgraduate Diploma (120 credits) is offered.
A Postgraduate Certificate (60 credits) is offered.

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**
- Ionising Radiation Physics: Interactions and Dosimetry
- Imaging with Ionising Radiation
- MRI and Biomedical Optics
- Ultrasound in Medicine
- Medical Electronics and Control
- Clinical Practice
- Medical Device Enterprise Scenario

**OPTIONAL MODULES**
- Students choose one of the following:
  - Applications of Biomedical Engineering
  - Materials and Engineering for Orthopaedic Devices
  - Computing in Medicine
  - Programming Foundations for Medical Image Analysis

**DISSERTATION/REPORT**
- All MSc students undertake an independent research project within the broad area of physics and engineering in medicine which culminates in a written report of 10,000 words, a poster and an oral examination.
Your career

Graduates have obtained employment with a wide range of employers in health care, industry and academia sectors.

Employability

Postgraduate study within the department offers the chance to develop important skills and acquire new knowledge through involvement with a team of world-leading scientists and engineers. As well as developing key science and engineering knowledge, graduates learn project management, communication and team working skills which they are then able to apply to solving problems at the forefront of human endeavour. The department has a recognised track record for producing excellent graduates who go on to hold leading roles in universities, companies and hospitals around the world.
Entry requirements

A minimum of an upper-second class UK Bachelor’s degree from a UK university or an overseas qualification of an equivalent standard in physics, engineering, computer science, mathematics, or other closely related discipline. Workplace knowledge and expertise are also considered. Applicants with a lower than upper-second class degree may be invited for a short online interview with programme tutors as part of their application process.

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 assess your application we would like to learn:
// why you want to study Physics and Engineering in Medicine at graduate level
// why you want to study Physics and Engineering in Medicine at UCL
// whether you have relevant industrial or workplace experience
// how your academic and professional background meets the demands of this challenging programme
// where you would like to go professionally after 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: £12,240 (FT), £6,250 (PT)
// EU: £12,240 (FT), £6,250 (PT)
// Overseas: £25,150 (FT), £13,340 (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

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