MEDICAL PHYSICS MSci
UCAS CODE: F350
2020 ENTRY

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Medical Physics MSci /

This four-year programme offers an extra year over the Physics with Medical Physics BSc in which you will extend your knowledge by taking additional advanced modules. You are advised to apply for the MSci programme initially but transfer between the BSc and MSci is possible during the first two years.

**Key information**

**Programme starts**
September 2020

**Location**
London, Bloomsbury

**Degree benefits**

- We have close links to several major teaching hospitals and our staff work side-by-side with doctors and health professionals.
- With our highly rated research, the expert knowledge of our staff will be of direct benefit in the lectures and teaching sessions you attend.
- Most medical physics classes are small (fewer than 35 students) providing you with an informal, interactive teaching environment in which you can easily raise questions.
- The programme is accredited by the Institute of Physics (IOP) providing the first step to chartered physicist status.

**Accreditation**

This programme is accredited by the Institute of Physics. Holders of accredited degrees can follow a route to Institute of Physics membership and the Chartered Physicist (CPhys) professional qualification. Graduates of accredited integrated undergraduate master's (MPhys or MSci) degrees have fulfilled the educational requirements for CPhys status, while graduates of accredited bachelor's (BSc) degrees have partially fulfilled these requirements.

**Degree structure**

In each year of your degree you will take a number of individual modules, normally valued at 15 or 30 credits, adding up to a total of 120 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 30-credit module is considered equivalent to 15 credits in the European Credit Transfer System (ECTS).

We offer the option of studying a three-year Physics with Medical Physics BSc or a more in-depth four-year Medical Physics MSci programme. The first two years of study for both programmes are identical and transfer between the two is possible up to the end of the second year. We advise applying for the MSci initially which makes it easier to defer your decision.

In the first year, you will receive an exciting introduction to all the major medical imaging techniques employed in modern hospitals, including X-ray imaging, computed tomography, magnetic resonance imaging, ultrasound, nuclear isotope imaging and encephalography.

In your second year, you will explore the physics of the human body - covering such topics as blood flow, lung function and thermal regulation - and biophysics, in which you will focus on topics including biological polymers, gas and fluid transport processes, membranes and nerve signals.

During years three and four you will choose three medical physics modules each year from a range of options and, in your final year, you will work on a major project with one of the department's research groups.

### YEAR ONE

**Core or compulsory module(s)**

- Atoms, Stars and the Universe
- Classical Mechanics
- Introduction to Medical Imaging
- Mathematical Methods I
- Mathematical Methods II
- Practical Skills
- Thermal Physics
- Waves, Optics and Acoustics

**Optional modules**

- All first year modules are compulsory.

### YEAR TWO

**Core or compulsory module(s)**

- Atomic and Molecular Physics
- Electricity and Magnetism
- Introduction to Biophysics
- Mathematical Methods III
- Physics of the Human Body
- Practical Physics
- Quantum Physics
- Statistical Physics of Matter

**Optional modules**

- All second year modules are compulsory.
YEARTHREE

Core or compulsory module(s)
- Experimental Physics
- Group Project

Optional modules
You will select three of the following:
- Electromagnetic Theory
- Nuclear and Particle Physics
- Solid State Physics
- Quantum Mechanics

Plus three of the following Medical Physics options:
- Applications of Biomedical Engineering
- Computing in Medicine
- Medical Electronics and Neural Engineering
- Medical Imaging with Ionising Radiation
- MRI and Biomedical Optics
- Physiological Monitoring
- Treatment with Ionising Radiation
- Biomedical Ultrasound

Students are able to take an appropriate module outside of those listed above at the discretion of the Programme Tutor.

FINALLYEAR

Core or compulsory module(s)
- Medical Physics Project

Optional modules
You will select 1.5 credits of further medical physics options (see below), plus 1.0 credit from suitable physics or approved outside options.

Medical Physics options include:
- Applications of Biomedical Engineering
- Computing in Medicine
- Medical Electronics and Neural Engineering
- Medical Imaging with Ionising Radiation
- MRI and Biomedical Optics
- Physiological Monitoring
- Treatment with Ionising Radiation
- Biomedical Ultrasound
- Computer Assisted Surgery and Therapy
- Information Processing for Medical Imaging
- Research Software Engineering with Python

Your learning
As well as attending lectures, you will also participate in tutorials and practical work, including projects. Projects are conducted in active, well-equipped research groups, often involving collaborations with local hospitals. Many medical physics lectures and projects are taken by a mix of medical physics and medical students, reflecting the multidisciplinary nature of the work performed in hospitals and universities.

Assessment
Modules are normally assessed by a combination of coursework and end-of-year examination.

Your career
Our degrees are accredited by the Institute of Physics and, as well as a career in medical physics, you will have access to the same wide diversity of careers as with any other UCL physics degree.

Physicists tend to be logical, numerate problem solvers and there is a demand for people who have developed such skills in a wide range of careers. If you are focusing on a career in medical physics there are three main paths.

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.

Your application will be especially interesting to us if you can demonstrate your interest in the medical applications of physics and engineering. You should be motivated by a desire to apply your training to the pursuit of improvements in the diagnosis and treatment of disease. Relevant work experience, project work and your knowledge of issues and current affairs surrounding this field will assist your application.

Shortlisted candidates will be invited to visit UCL and tour the two departments in which your teaching will take place. During your visit you will be able to view our facilities and meet staff and current students.
Entry requirements

A LEVELS
Standard Offer: AAA. Mathematics and Physics required at grade A.
Contextual Offer: AAB. Mathematics and Physics required at grade A.

GCSE
English Language and Mathematics at grade C or 5. For UK-based students, a grade C or 5 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
Standard Offer: 38 points. A score of 18 points in three higher level subjects including grade 6 in Mathematics and Physics, with no score lower than 5.
Contextual Offer: 36 points. A score of 17 points in three higher level subjects including grade 6 in Mathematics and Physics, with no score lower than 5. Grade 6 in Higher Level Mathematics required.

CONTEXTUAL OFFERS – ACCESS UCL SCHEME
As part of our commitment to increasing participation from underrepresented groups, students may be eligible for a contextual offer as part of the Access UCL scheme. For more information see www.ucl.ac.uk/prospectus

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)
UCL 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 2020/21 academic year. The UK/EU fees shown are for the first year of the programme at UCL only. Fees for future years may be subject to an inflationary increase. The Overseas fees shown are the fees that will be charged to 2020/21 entrants for each year of study on the programme, unless otherwise indicated below.

// UK & EU: £9,250 (2020/21)
// Overseas: £28,610 (2020/21)

Full details of UCL’s tuition fees, tuition fee policy and potential increases to fees can be found on the UCL Students website.

Additional costs
If you are concerned by potential additional costs for books, equipment, etc. on this programme, please get in touch with the relevant departmental contact (details given on this page).

Funding
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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Brexit
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

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