LONDON’S GLOBAL UNIVERSITY

PHYSICS WITH MEDICAL PHYSICS BSc / UCAS CODE: F351 2018 ENTRY

www.ucl.ac.uk/prospectus/medphys
This three-year programme offers an excellent education in a thriving field of science and engineering. The foundation in core physics together with the major areas of physics applied to medicine prepare you for a wide variety of careers inside and outside medical physics, including those in scientific research and industry.

**Key information**

**Programme starts**  
September 2018

**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. Our department scored highly (89%) for overall satisfaction in the 2016 National Student Survey.
- The programme is accredited by the Institute of Physics (IOP) providing the first step to chartered physicist status.

**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.

- 95% 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.

**Accreditation**

This programme is accredited by the [Institute of Physics](https://www.iop.org). 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 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).

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 electroencephalography.

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 your final year you will choose three medical physics options from a range and 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
- Physics of the Human Body
- Quantum Physics
- Statistical Thermodynamics

**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 Thermodynamics

**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.

**Final Year**

<table>
<thead>
<tr>
<th>Core or compulsory module(s)</th>
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<tr>
<td>Medical Physics Project</td>
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**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:
  - Aspects of Biomedical Engineering
  - Applications of Bioengineering
  - Computing in Medicine
  - Medical Electronics and Neural Engineering
  - Medical Imaging with Ionising Radiation
  - MRI and Biomedical Optics
  - Physiological Monitoring
  - Treatment with Ionising Radiation
  - Ultrasound in Medicine

**Your learning**

As well as attending lectures, you will also undertake 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**

The first thing to note is that studying medical physics at university doesn’t commit you to a career in the field. Our degrees are accredited by the Institute of Physics and give you access to the same wide diversity of careers as 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.

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

- Trainee Clinical Scientist (Medical Physics), King’s College Hospital NHS Foundation Trust
- NHS Manager, St George’s Healthcare NHS Trust
- Buyer, Jaguar Land Rover
- Full-time student, PhD in Medical Physics at University of Cambridge
- Full-time student, PGCE Science: Physics at University of East London (UEL)

**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

Grades
AAA-AAB

Subjects
Mathematics and Physics required; grade A in Mathematics preferred.

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

Points
36-38 overall.

Subjects
A score of 17-18 points in three higher level subjects including Mathematics and Physics (grade 6 in Mathematics preferred), 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 2018/19 academic year. The UK/EU fees shown are for the first year of the programme at UCL only. The Overseas fees shown are the fees that will be charged to 2018/19 entrants for each year of study on the programme, unless otherwise indicated below.

// UK & EU: £9,250 (2018/19)
// Overseas: £25,960 (2018/19)

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

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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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