PHYSICS WITH MEDICAL PHYSICS BSc / UCAS CODE: F351 2021 ENTRY

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Physics with Medical Physics BSc /

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 2021

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 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 and will work on a major project with one of the department's research groups.

Upon successful completion of 360 credits, you will be awarded a BSc (Hons) in Physics with Medical Physics.

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.

YEAR ONE

Compulsory module(s)

// Waves, Optics and Acoustics
// Thermal Physics and the Properties of Matter
// Practical Physics and Computing 1
// Atoms, Stars and the Universe
// Mathematical Methods I
// Mathematical Methods II
// Classical Mechanics
// Introduction to Medical Imaging
// Developing Effective Communication 1

Optional modules

// All first year modules are compulsory.
### YEAR TWO

#### Compulsory module(s)
- Electricity and Magnetism
- Quantum Physics
- Atomic and Molecular Physics
- Statistical Physics of Matter
- Mathematical Methods III
- Practical Physics 2A
- Introduction to Biophysics
- Physics of the Human Body

#### Optional modules
- All second year modules are compulsory.

### FINAL YEAR

#### Compulsory module(s)
- Research Project in Medical Physics and Biomedical Engineering

#### 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.

### 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.

### 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.

### Accessibility

Details of the accessibility of UCL buildings can be obtained from AccessAble. Further information can also be obtained from the UCL Student Support & Wellbeing team.

### Your career

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. Following a degree in medical physics, students tend to pursue careers in clinical, industry or research settings.

Medical physicists can work in hospitals directly with clinicians and their patients, or take a research approach and develop new techniques and technologies within industry or academia.
Entry requirements

**A LEVELS**

**Standard Offer:** AAA. 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.

**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**

(Unternational 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 2021/22 academic year. The UK 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 2021/22 entrants for each year of study on the programme, unless otherwise indicated below.

- **UK & EU:** £9,250 (2021/22)
- **Overseas:** £31,200 (2021/22)

Full details of UCL’s tuition fees, tuition fee policy and potential increases to fees can be found on the [UCL Students website](www.ucl.ac.uk/ug-reqs).

**ADDITIONAL COSTS**

This programme does not have any additional costs outside of purchasing books or stationery, printing, thesis binding or photocopying.

A guide including rough estimates for these and other living expenses is included on the UCL Fees and funding pages. If you are concerned by potential additional costs for books, equipment, etc., 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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**UK withdrawal from the EU**

For up-to-date information relating to specific key questions following the UK’s withdrawal from the EU, please refer to: www.ucl.ac.uk/brexit.