MEDICAL SCIENCES AND ENGINEERING BSc / UCAS CODE: AH11 2018 ENTRY

www.ucl.ac.uk/prospectus/surgery
This new degree aims to give students a strong foundation in the human body and disease along with an understanding of design and engineering principles. The purpose of this is to combine innovation and technology with patient care. Students will be taught to apply a systems approach to engineering-related developments in healthcare, academia and business centres. This programme intends to develop multi-skilled graduates equipped to meet a rapidly expanding need.

**Key information**

**Programme starts**  
September 2018

**Location**  
London, Bloomsbury

**Degree benefits**

- You will learn about the human body and disease, as well as ways of developing and implementing innovative therapies in order to deliver what is an increasingly technology-driven standard of care.

- You will have the benefit of teaching underpinned by world-leading research activity in medical devices across UCL’s faculties. Graduates will be capable of delivering world-class biomedical engineering solutions that sustain human health and longevity.

- You will engage with scientists, clinicians and engineers across UCL’s Bloomsbury, Royal Free and Stanmore campuses. This close interaction with national hospitals means that education is driven by medical challenges.

- You will develop your entrepreneurial skills and learn how research can be translated into clinical practice. You will also learn about the related challenges of commercialisation within the Medical Technology industry.

**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.

- 80%: Clinical Medicine subjects; 95%: General Engineering subjects 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](#).

**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).

This degree is comprised of eight compulsory modules in both years one and two, which are split equally between engineering and medical science. In year three, students will be asked to personalise their education with four student-selected modules and four compulsory modules.

Students are able to choose optional modules from a number offered throughout UCL. They will be encouraged to design their degree programme along an engineering, medical sciences or business/innovation theme.

Students will have the opportunity to experience UCL’s cutting-edge research laboratories, as well as state-of-the-art hospital facilities.

Students will develop skills in information evaluation, integration, and its application to healthcare. They will be able to carry out a bioengineering system-related research project in their final year.

**YEAR ONE**

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<th>Core or compulsory module(s)</th>
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<tr>
<td>Introduction to Engineering Medicine</td>
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<td>Cardiovascular and Respiratory Function in Health and Disease</td>
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<tr>
<td>Mathematics and Modelling</td>
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<tr>
<td>Medical Instrumentation</td>
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<tr>
<td>Infection, Inflammation and Repair</td>
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<td>The Gut, Liver and Drug Metabolism</td>
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<td>Materials and Mechanics</td>
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<td>Professional Engineering Practice</td>
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**Optional modules**

- All first year modules are compulsory.

**YEAR TWO**

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<tr>
<td>The Functional Nervous System and Brain</td>
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<tr>
<td>Medical Devices</td>
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<tr>
<td>Mathematical Modelling and Analysis</td>
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<tr>
<td>Musculoskeletal Biology</td>
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<tr>
<td>Manufacturing Regenerative Medicines</td>
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<tr>
<td>Fundamentals of Biomechanics</td>
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<tr>
<td>Kidneys, Hormonal Control of Human Physiology, Fluid Balance and Nutrition</td>
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<tr>
<td>Professional Medical Practice</td>
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**Optional modules**

- All second year modules are compulsory.

**YEAR THREE**

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<th>Core or compulsory module(s)</th>
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<tr>
<td>Medical Electronics and Neural Engineering</td>
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<td>Frailty and Ageing</td>
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<tr>
<td>Professional Clinical Practice</td>
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<td>Research Project</td>
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**Optional modules**

- A variety of optional modules will be available, allowing students to personalise their degree along an engineering, medical sciences or business/innovation theme.
Your learning
Taught modules will be supported by specially-tailored, lab-based group tutorials. Working in small teams, students will apply their knowledge within a supported environment, supervised by academics. Formal learning will include practical classes, case-based discussions, workshops and research projects (group and individual).

Fieldwork
None

Placement
Graduates will be equipped to deliver world-class biomedical engineering and regenerative medicine solutions in clinical, commercial, regulatory and research environments. They will have the skills to move into the expanding global medical technologies and regenerative medicine sectors as product specialists, researchers, designers and regulatory advisors. Graduates may also enter NHS Clinical Scientist and Clinical Engineer training programmes.

Assessment
A range of methods of assessment will be used across the programme, including: written coursework, project reports, and unseen examinations (designed to test knowledge and understanding of both medical sciences and engineering).

Your career
Graduates will be equipped to deliver world-class biomedical engineering and regenerative medicine solutions in clinical, commercial, regulatory and research environments. They will have the skills to move into the expanding global medical technologies and regenerative medicine sectors as product specialists, researchers, designers and regulatory advisors. Graduates may also enter NHS Clinical Scientist and Clinical Engineer training programmes.

Recent government and industry reports have identified skills shortages in the healthcare and pharmaceutical sectors. These shortages need to be met by multidisciplinary graduates who can think broadly to create new solutions to global challenges.

The first cohort of students admitted to the Medical Sciences and Engineering BSc is due to graduate in 2020. Therefore, information about career destinations for students on this programme is not yet available.

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.

We will be looking for evidence of your motivation, commitment and enthusiasm to pursue this degree. This could be demonstrated through relevant work or other experiences (e.g. attendance at a scientific exhibition). This programme will suit students who want to make a difference in the world, who are innovative and inventive, and who are prepared to be challenged. Due to the course content, we strongly recommend that applicants have an A or AS level in biology and maths.
Entry requirements

**A LEVELS**

*Grades*
AAA-AAB

*Subjects*
Physics or Mathematics, and Chemistry or Biology, plus one other subject, are required.

**GCSE**

English Language and Mathematics at grade B or 6. 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 overall.

*Subjects*
A total of 17 points in three higher level subjects, with no score below 5, to include Physics or Mathematics, and Chemistry or Biology, plus one further subject.

**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.

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**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:** £24,040 (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.

**Additional costs**

None

**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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Department: Division of Surgery and Interventional Science

**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