ENGINEERING (BIOCHEMICAL)
BEng / UCAS CODE: H811
2021 ENTRY

www.ucl.ac.uk/prospectus
The Biochemical Engineering undergraduate programme at UCL fully integrates engineering and biotechnology. The BEng degree is ideal for those who would like to explore careers in biotechnology, pharmaceutical or bioenergy sectors. Both BEng and MEng degrees share a common curriculum of practical core modules, delivered through innovative teaching.

**Key information**

**Programme starts**  
September 2021

**Location**  
London, Bloomsbury

**Degree benefits**

// The department has one of the most modern and comprehensive biochemical engineering facilities of any university in the world. Valued at over £35 million, our facilities attract leading industrial collaborators from the biopharmaceutical, cell therapy and industrial biotechnology sectors. You will gain skills through practical activities sought after by employers.

// The BEng is an interdisciplinary programme, blending applied biology, mathematics and engineering thinking. It is ideal for students who enjoy applying science to real contexts. It prepares you for further study in the biotechnology area or to enter the bioprocess industry after graduation.

// Use of innovative teaching methods is widespread in our degrees e.g. blended learning, problem-based learning, e-learning, peer assessment. We aim to make our graduates confident and adaptable so they are confident when applying their knowledge to real-life challenges.

// Our staff are at the forefront of research in areas such as regenerative medicine, biopharmaceuticals and biofuels. We are committed to research-based teaching through UCL’s Connected Curriculum, meaning students will be exposed to the newest developments in these fields.

**Accreditation**

This programme is accredited by the Institution of Chemical Engineers (IChemE) as satisfying the academic requirement for registration as a Chartered Chemical Engineer when supplemented with further learning to Master’s level.

**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).

Core modules are designed to introduce you to biochemical engineering through lectures and use of practical training facilities. Scenario-based learning activities will give you hands-on experience in a diverse range of fields, from tackling biopharmaceutical process development to evaluating sustainability of biofuels.

The programme builds up to the Design Project in year three, where students apply the knowledge they have gained to a case study where they will be tasked with creating a process for manufacture of a biopharmaceutical product, for example, including facility design and techno-economic evaluation.

The degree will be broken down into three main components:

- Discipline-specific material in biochemical engineering
- Common engineering elements taught within the Faculty of Engineering Sciences; and
- Minor modules where you may choose from a range of subjects offered by the Faculty of Engineering Sciences.

Students register for Biochemical Engineering as the core discipline, but they also engage in activities that span departments via the UCL Integrated Engineering Programme. Our degrees encourage professional development, with an emphasis on design and challenging students to apply knowledge to complex problems.

You may reassess your choice of BEng/MEng route towards the end of the second year, when you have gained a deeper knowledge of what the subject involves. We normally advise applying for the MEng if you are undecided, as this gives you the most control over your study plans.

Upon successful completion of 360 credits, you will be awarded a BEng (Hons) in Engineering (Biochemical).

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)**

- Introduction to Biochemical Engineering
- Fluid Flow and Mixing in Bioprocesses
- Thermodynamics
- Biochemistry and Molecular Biology
- Bioprocess Analysis
- Mathematical Modelling and Analysis 1
- Design and Professional Skills 1
- Engineering Challenges
YEAR TWO

Compulsory module(s)
- Downstream Processing for Engineers
- Fermentation and Bioreactor Engineering
- Biochemistry of Protein Production for Biochemical Engineers
- Heat and Mass Transfer in Bioprocesses
- Modelling and Analysis II
- Design and Professional Skills II

Optional modules
- You will be able to select one subject from the Integrated Engineering Programme list of Minor subjects.

FINAL YEAR

Compulsory module(s)
- Bioprocess Plant Design
- Biochemical Reaction Engineering
- Computer Aided Bioprocess Engineering
- Applied Cell and Molecular Biology
- Chemistry and Industrial Biotechnology

Optional modules
- You will continue with two modules in your selected Minor subject from year two.

Your learning

You will be taught through a combination of lectures, case studies, team-based projects and laboratory and pilot-plant based practicals. Leading industrialists and researchers regularly visit the department to provide guest lectures. Our programmes offer regular opportunities for students to put their learning into practice through the use of scenarios. Case studies and the Design Project are conducted in small teams, with your tutors offering individual support.

Assessment

Diverse forms of assessments linked to learning outcomes are designed to test a broad range of skills. Modules at the start of the degree are assessed via 2-3 pieces of coursework and an unseen examination at the end of the year. Problem-based activities may be assessed by individual or group reports, oral or poster presentations.

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

The science, engineering, business and leadership skills that you acquire on the programme will provide you with excellent and diverse career prospects. In addition to your core subject knowledge in biochemical engineering, the programme will provide you with the analytical, problem-solving and numeracy skills desired by a wide range of sectors.

The incredible pace of biological advances towards new medicines and greener sustainable processes is creating an ever-growing need for biochemical engineering graduates to work in the biotechnology, pharmaceutical, biofuels, chemical, environment and food industries.

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.

In addition to academic requirements, we will use your application to assess your motivation for studying biochemical engineering. We are seeking applicants committed to studying at the highest level, who are eager and able to rise to the challenges presented both by the programme and by a career in the discipline.

If we have made you an offer, you will be invited to an offer-holder's open day. This provides an excellent opportunity for you to visit the departmental facilities and meet current students and staff before making a final decision.
**Entry requirements**

**A LEVELS**

**Standard Offer:** AAA. Mathematics required, plus one from Biology, Chemistry or Physics.

**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:** ABB. Mathematics at grade A required, plus one from Biology, Chemistry or Physics.

**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 total of 18 points in three higher level subjects including grade 6 in Mathematics, plus one from Biology, Chemistry or Physics, with no score below 5.

**Contextual Offer:** 34 points. A total of 16 points in three higher level subjects including grade 6 in Mathematics, plus one from Biology, Chemistry or Physics, with no score below 5.

**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 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.

<table>
<thead>
<tr>
<th></th>
<th>UK: £9,250 (2021/22)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overseas: £31,200</td>
</tr>
</tbody>
</table>

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**

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**

The department has established a trust fund that supports five bursaries per year, each worth at least £1500. These are open to all applicants accepted onto undergraduate programmes.

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**

Dr Brenda Parker

Email: biochemeng@ucl.ac.uk

Telephone: +44 (0)20 7679 9789

Department: Biochemical Engineering

**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.