

| Programme Information  |                |                       |
|--|----------------|-----------------------|
| Programme Title  | Programme Code | HECoS Code            |
| BSc Biochemistry with a Year in Industry/Research<br>BSc Biochemistry with Research Abroad | C701<br>C702   | For Registry Use Only |

| Award   | Length of Study | Mode of Study | Entry Point(s) | Total Credits |      |
|---------|-----------------|---------------|----------------|---------------|------|
|         |                 |               |                | ECTS          | CATS |
| BSc     | 4 Years         | Full-time     | October        | 240           | 480  |
| Dip HE  | N/A             | N/A           | N/A            | 120           | 240  |
| Cert HE | N/A             | N/A           | N/A            | 60            | 120  |

The Cert. HE / Dip. HE are exit awards and are not available for entry. You must apply to and join the BSc

| Ownership            |  |                           |                  |
|----------------------|--|---------------------------|------------------|
| Awarding Institution | Imperial College London                              | Faculty                   | Natural Sciences |
| Teaching Institution | Imperial College London                              | Department                | Life Sciences    |
| Associateship        | Associateship of the Royal College of Science (ARCS) | Main Location(s) of Study | South Kensington |

| External Reference   |                       |
|--|-----------------------|
| Relevant <a href="#">QAA Benchmark Statement(s)</a> and/or other external reference points | Biosciences           |
| <a href="#">FHEQ Level</a>   | Level 6               |
| <a href="#">EHEA Level</a>   | 1 <sup>st</sup> cycle |

| External Accreditor(s) (if applicable) |      |                        |     |
|--|------|------------------------|-----|
| External Accreditor:                   | None |                        |     |
| Accreditation received:                | N/A  | Accreditation renewal: | N/A |

| Collaborative Provision |                    |                          |                       |
|-------------------------|--------------------|--------------------------|-----------------------|
| Collaborative partner   | Collaboration type | Agreement effective date | Agreement expiry date |
| N/A                     | N/A                | N/A                      | N/A                   |

| Specification Details |                   |
|-----------------------|-------------------|
| Programme Lead        | Prof Huw Williams |

|  |               |
|--|---------------|
| Student cohorts covered by specification | 2024-25 entry |
| Date of introduction of programme        | October 2019  |
| Date of specification revision           | April 2023    |

## Programme Overview

The Biochemistry with a Year in Industry/Research and Biochemistry with Research Abroad programmes allow students the opportunity to gain experience within commercial companies or research organisations.

Studying the Biochemistry BSci programme you will be actively engaged in a curriculum that will be enriched from year 1 onwards by the Department of Life Science's research environment. You will study the fundamental chemical processes occurring in living organisms and how the structure and chemical properties of molecules relate to their cellular function. You will learn to use chemical knowledge and methodologies to understand and solve biological problems through investigating the properties of the molecules that build living cells, such as proteins, carbohydrates and nucleic acids, as well as the function of organelles and the ways in which cells communicate with one another.

All students on Biochemistry programmes follow the same core modules in the first two years of study, where the programme will range from biological chemistry and metabolism to cell and molecular biology. This will be complemented by a Life Science Skills programme that will provide training in quantitative skills, programming, statistics and scientific writing and presentation. You will develop a synoptic understanding of Biochemistry before starting to specialise towards the end of year 2 by taking elective modules.

For BSc Biochemistry with a Year in Industry/Research, the third year will be spent carrying out research in an industrial, medical or other biochemical work environment.

For BSc Biochemistry with Research Abroad, the third year will be spent carrying out research in an industrial, medical or other appropriate biochemical/biotechnological work environment overseas. Links with various universities in the EU have been established for the overseas scientific and cultural component of the Year in Europe/Research Abroad degrees.

You will specialise in the final year by selecting modules leading to specialisation in a range of Biochemical and Life Science areas including Structural Biology, Infection and Immunology, Systems Biology, Stem Cells, Neuroscience, Metabolic Engineering and Synthetic Biology, Developmental Biology and Bioinformatics. Our final year specialised modules are based around our wide-ranging, world class research expertise and you will be brought to the edge of knowledge in your chosen specialised modules, taught by experts.

Through laboratory and computational work, you will learn the skills you need to design, carry out and analyse the data from biochemical experiments

You will have the opportunity to contribute to the department's research by undertaking a 10 week, full time research project.

You will learn from the full range of academic staff in the department, including world leaders, as well as postgraduate students, your peers and visiting scientists to the department.

Graduates in Life Sciences go onto range of employments and further study including PhD study, research and development, science policy, research and technical consultancy, business and finance.

## Learning Outcomes

Please refer to the Teaching Toolkit for advice on the role and purpose of Intended Learning Outcomes (ILO): [www.imperial.ac.uk/staff/educational-development/teaching-toolkit/intended-learning-outcomes](http://www.imperial.ac.uk/staff/educational-development/teaching-toolkit/intended-learning-outcomes)

**On completion of this programme, graduates will be able to:**

**On achieving the Cert HE:**

1. Interpret and apply core terminology and key concepts used in life sciences;
2. Integrate fundamental biological and/or biochemical principles to explore biological complexity;
3. Integrate concepts from a range of disciplines, including physics, chemistry and maths, to solve problems in life sciences;
4. Demonstrate effective verbal, written communication and presentation skills;

**On achieving the Dip HE, the ILOs (1-4) above and ....**

5. Explore ethical and social issues in life sciences, and consider the potential impact of novel technologies;
6. Formulate hypotheses, design experiments, and apply lab and/or field skills to collect and critically evaluate relevant data;
7. Conduct statistical analyses using programming skills, adhering to publication standards;
8. Collaborate successfully in diverse, multicultural and international teams;

**On achieving the BSc, all the ILOs (1-8) above and ....**

9. Demonstrate excellent verbal, written communication and presentation skills across a range of academic and disciplinary activities, including research, assessment, dissemination and communication with diverse audiences;
10. Solve complex real-world problems within their degree specialisation, using a range of appropriate laboratory, computational or field skills;
11. Create independent, enquiry-based, extended and novel work that demonstrates critical analysis and evaluation.
12. Demonstrate an awareness of the outstanding research problems of their chosen Life Science specialities through exploring topics in the final year, research-led modules and be able to evaluate and understand how they are being or can be tackled.
13. Display a strong sense of personal and professional identity as a life scientist, and feel confident to apply the scientific method to real-world life science problems;

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial degree programme. The Graduate Attributes are available at:

<https://www.imperial.ac.uk/about/education/our-graduates/>

**Entry Requirements**

Academic Requirement

A level

AAA overall, to include:  
A in Chemistry  
A in Biology, Mathematics or Physics  
A in another subject

General Studies and Critical Thinking are not accepted.

International Baccalaureate (IB)

Minimum **38** overall  
**6** in Chemistry at higher level

|                              |  |
|------------------------------|--|
|                              | <b>6</b> in Biology, Physics or Mathematics at higher level  |
| Non-academic Requirements    | None   |
| English Language Requirement | <a href="#">Higher requirement</a><br>Please check for other <a href="#">Accepted English Qualifications</a>         |
| Admissions Test/Interview    | There is no admissions test associated with entry to this programme and applicants will not normally be interviewed. |

The programme's competency standards documents are available from the department.

## Learning and Teaching Approach

### Learning and Teaching Delivery Methods

Lectures and large group-teaching incorporating a range of active learning approaches, laboratory practicals working as individuals, in pairs or small groups, computational work, seminars, tutorials and problem classes, interactive online learning material, online concepts and skills videos and interactive group work, student presentations as individuals and small groups, team-based learning, dissertation and individual research projects.

### Overall Workload

Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary according to the optional modules you choose to study, the following gives an indication of how much time you will need to allocate to different activities at each level of the programme. At Imperial, each ECTS credit taken equates to an expected total study time of 25 hours. Therefore, the expected total study time is 1500 hours per year.

Typically in the first two years you will spend in the order of 30% of your time on lectures, laboratory work and small group teaching and seminars and similar (around 400 hours) and in the order of 70% of your time on independent study.

## Assessment Strategy

### Assessment Methods

#### Formative assessment.

Performance in problem classes, quizzes in lectures, digital resources for self-assessment including online quizzes and problems, by discussions in tutorials as well as written and or verbal feedback on a range of non-examined tasks, including the types of summatively assessed tasks listed below.

#### Summative Assessment

Written Examinations  
Laboratory write-ups  
Essays  
Reports  
Dissertations  
Presentations  
Individual research project report  
Viva voce examination  
Peer assessment  
Poster presentations

| Assessment Mode | Year 1 | Year 2 | Year 3 | Year 4 |
|-----------------|--------|--------|--------|--------|
| Examination     | 60     | 48     | 0      | 56     |
| Coursework      | 40     | 52     | 0      | 44     |

|   |
|---|
| Academic Feedback Policy  |
| <p>Coursework submission is managed by our education office and in most cases coursework is submitted electronically via BlackBoard and feedback is provided electronically or by a feedback form attached to items of coursework. Feedback is also provided via Blackboard on formative quizzes. You will receive feedback normally within 10 working days, but this might be longer for some very substantial pieces of work, such as a dissertation. Personal tutors hold timetabled tutorials to give feedback on examination performance and can be approached by their tutees at any point in the year for further guidance. The education office manages the timely return of coursework feedback and the Director of Undergraduate Studies routinely monitors the quality and quantity of feedback provided. In some instances, generic class feedback is returned to all students via email or a Blackboard announcement once coursework is marked</p> |
| Re-sit Policy   |
| <p>Imperial's Policy on Re-sits is available at: <a href="http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/">www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/</a></p>   |
| Mitigating Circumstances Policy   |
| <p>Imperial's Policy on Mitigating Circumstances is available at: <a href="http://www.imperial.ac.uk/student-records-and-data/current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/">www.imperial.ac.uk/student-records-and-data/current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/</a></p>  |

| Additional Programme Costs  |                    |                  |
|---|--------------------|------------------|
| This section should outline any additional costs relevant to this programme which are not included in students' tuition fees. |                    |                  |
| Description   | Mandatory/Optional | Approximate cost |
| N/A   | N/A                | N/A              |

| <b>Programme Structure</b>   |   |                                  |        |                 |         |
|--|---|----------------------------------|--------|-----------------|---------|
| <b>Year 1 – FHEQ Level 4</b>   |   |                                  |        |                 |         |
| <b>You will study all core modules.</b>                                      |   |                                  |        |                 |         |
| Code   | Module Title  | Core/<br>Elective                | Group* | Term            | Credits |
| LIFE40001  | Biological Chemistry                                      | Core                             |        | Autumn-Summer   | 15      |
| LIFE40002  | Cell Biology  | Core                             |        | Autumn-Summer   | 15      |
| LIFE40003  | Enzymes and Metabolism                                    | Core                             |        | Spring-Summer   | 15      |
| LIFE40004  | Molecular Biology   | Core                             |        | Spring-Summer   | 15      |
| Credit Total   |   |                                  |        |                 | 60      |
| <b>Year 2 - FHEQ Level 5</b>   |   |                                  |        |                 |         |
| <b>You will study all core modules and one elective module from Group A.</b> |   |                                  |        |                 |         |
| Code   | Module Title  | Core/<br>Compulsory/<br>Elective | Group  | Term            | Credits |
| LIFE50022  | Structural Biology  | Core                             |        | Autumn          | 10      |
| LIFE50010  | Genes and Genomics  | Core                             |        | Autumn          | 7.5     |
| LIFE50026  | Bioinformatics, Programming and Statistics (Biochemistry) | Core                             |        | Autumn-Spring   | 5       |
| LIFE50003  | Tutored Dissertation                                      | Core                             |        | Spring - Summer | 7.5     |
| LIFE50019  | Protein Science   | Core                             |        | Spring          | 7.5     |
| LIFE50013  | Integrative Cell Biology                                  | Core                             |        | Spring          | 10      |
| LIFE50023  | Topics in Biotechnology                                   | Elective                         | A      | Summer          | 7.5     |
| LIFE50007  | Challenges in Cell Biology                                | Elective                         | A      | Summer          | 7.5     |
| LIFE50001  | Applied Molecular Biochemistry                            | Elective                         | A      | Summer          | 7.5     |
| LIFE50018  | Computational 'Omics                                      | Elective                         | A      | Summer          | 7.5     |
|  | I-Explore   | Compulsory                       |        | Autumn-Spring   | 5/7.5   |
| Credit Total   |   |                                  |        |                 | 60/62.5 |
| <b>Year 3 - FHEQ Level 6</b>   |   |                                  |        |                 |         |
| <b>You will study all core modules.</b>                                      |   |                                  |        |                 |         |

| Code                   | Module Title  | Core/Elective | Group | Term              | Credits |
|------------------------|---|---------------|-------|-------------------|---------|
| LIFE60037<br>LIFE60036 | Year in Industry/Research (C701 only)<br><b>OR</b><br>Year Abroad (C702 only) | Core          |       | Autumn-<br>Summer | 60      |
| Credit Total           |   |               |       |                   | 60      |

#### Year 4 - FHEQ Level 6

**All year 4 modules are electives and you will select three electives for study, one from each of Groups A, B and C and a research project option from Group D. Elective modules in Groups A, B and C are capped normally at 40-45 students/module and students choose their top three choices from each group with final allocations being made by an algorithm that maximises the allocation of highest number of top choices across the cohort.**

| Code      | Module Title                                       | Core/<br>Elective | Group | Term   | Credits |
|-----------|--|-------------------|-------|--------|---------|
| LIFE60061 | Stem Cells, Regeneration and Ageing                | Elective          | A     | Autumn | 15      |
| LIFE60056 | Metabolic and Network Engineering                  | Elective          | A     | Autumn | 15      |
| LIFE60055 | Medical Microbiology                               | Elective          | A     | Autumn | 15      |
| LIFE60057 | Plant Biotechnology and Development                | Elective          | C     | Spring | 15      |
| LIFE60059 | Current Topics in Developmental Biology            | Elective          | A     | Autumn | 15      |
| LIFE60062 | Structural Biology and Drug Design                 | Elective          | A     | Autumn | 15      |
| LIFE60050 | Evolutionary Applications                          | Elective          | B     | Autumn | 15      |
| LIFE60067 | Bacterial Molecular Machines                       | Elective          | A     | Autumn | 15      |
| LIFE60052 | Integrative Systems Biology                        | Elective          | B     | Autumn | 15      |
| LIFE60043 | Advanced Topics in Parasitology and Vector Biology | Elective          | B     | Autumn | 15      |
| LIFE60063 | Symbiosis, Plant Immunity and Disease              | Elective          | B     | Autumn | 15      |
| LIFE60042 | Advanced Topics in Immunity and Infection          | Elective          | A     | Autumn | 15      |
| LIFE60065 | The Microbiome                                     | Elective          | C     | Spring | 15      |
| LIFE60048 | Cancer   | Elective          | B     | Autumn | 15      |
| LIFE60053 | Mechanisms of Gene Expression                      | Elective          | B     | Autumn | 15      |
| LIFE60058 | Molecular Basis of Bacterial Infection             | Elective          | C     | Spring | 15      |
| LIFE60047 | Bioinformatics                                     | Elective          | C     | Spring | 15      |
| LIFE60060 | Synthetic Biology                                  | Elective          | C     | Spring | 15      |

|              |   |          |   |               |    |
|--------------|---|----------|---|---------------|----|
| LIFE60064    | Systems Neuroscience                                  | Elective | C | Spring        | 15 |
| LIFE60046    | Biodiversity Genomics                                 | Elective | A | Autumn        | 15 |
| LIFE60041    | Advanced Immunology                                   | Elective | B | Autumn        | 15 |
| LIFE60054    | Medical Glycobiology (not running in 2024-25)         | Elective | C | Spring        | 15 |
| LIFE60049    | Disease Ecology and Epidemiology                      | Elective | B | Autumn        | 15 |
| LIFE60040    | Science Communications plus Research Proposal Project | Elective | D | Spring-Summer | 15 |
| LIFE60066    | Research Project (Lab, Data, Field)                   | Elective | D | Spring-Summer | 15 |
| LIFE60069    | Vaccinology   | Elective | C | Spring        | 15 |
| LIFE60068    | Cellular Biophysics                                   | Elective | C | Spring        | 15 |
| Credit Total |   |          |   |               | 60 |

\* 'Group' refers to module grouping (e.g. a group of electives from which one/two module(s) must be chosen).



## Progression and Classification

### **Progression**

In order to progress to the next level of study, you must have passed all modules (equivalent to 60 ECTS) in the current level of study at first attempt, at resit or by a compensated pass.

The overall weighted average for each year must be 40%, including where a module(s) has been compensated, in order for you to progress to the next year of the programme.

### **Classification**

The marks from modules in each year contribute towards the final degree classification.

In order to be considered for an award, you must have achieved the minimum number of credits at the required levels prescribed for that award and met any programme specific requirements as set out in the Programme Specification.

Your classification will be determined through:

- i) Aggregate Module marks for all modules
- ii) Year Weightings

For this award, Year One is weighted at 7.5%, Year Two at 35% and Year Three at 0% and Year Four at 57.5%.

The university sets the class of undergraduate degree that may be awarded as follows:

- i) First                      70% or above for the average weighted module results
- ii) Upper Second        60% or above for the average weighted module results
- iii) Lower Second       50% or above for the average weighted module results
- iv) Third                     40% or above for the average weighted module results

## Programme Specific Regulations

N/A

## Supporting Information

The Programme Handbook is available from the department.

The Module Handbook is available from the department.

Imperial's entry requirements for postgraduate programmes can be found at:  
[www.imperial.ac.uk/study/pg/apply/requirements](http://www.imperial.ac.uk/study/pg/apply/requirements)

Imperial's Quality and Enhancement Framework is available at:  
[www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance](http://www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance)

Imperial's Academic and Examination Regulations can be found at:  
[www.imperial.ac.uk/about/governance/academic-governance/regulations](http://www.imperial.ac.uk/about/governance/academic-governance/regulations)

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[www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/](http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/)

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[www.officeforstudents.org.uk/advice-and-guidance/the-register/](http://www.officeforstudents.org.uk/advice-and-guidance/the-register/)

**This document provides a definitive record of the main features of the programme and the learning outcomes that you may reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for prospective and current students, academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.**