

Programme Information		
Programme Title	Programme Code	HECoS Code
MSci Biotechnology	J703	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MSci	4 years	Full-time	October	240	480
BSc (Hons)	3 years	Full-time	October	180	360
DipHE – J700D	2 years	Full-time	N/A	120	240
CertHE – J700C	1 year	Full-time	N/A	60	120

All students must apply to and join the MSci.

The CertHE, DipHE and BSc (Hons) are exit awards and are not available for entry. Students may be permitted, subject to the requirements of the programme team, to transfer from the MSci to the direct entry BSc programmes offered by the department.

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Natural Sciences
Teaching Institution	Imperial College London	Department	Life Sciences
Associateship	Associateship of the Royal College of Science (ARCS) (BSc (Hons) and MSci only)	Main Location(s) of Study	South Kensington

External Reference

Relevant [QAA Benchmark Statement\(s\)](#) and/or other external reference points

[Biosciences](#)

[FHEQ Level](#)

Level 7

[EHEA Level](#)

2nd Cycle

External Accreditor(s) (if applicable)

External Accreditor 1:

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		2026-27 entry	
Date of introduction of programme		October 26	
Date of programme specification/revision		March 26	

Programme Overview

Studying the Biotechnology MSci programme you will be actively engaged in a curriculum that will be enriched from year 1 onwards by the Department of Life Sciences' 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 and how this can be applied to solve real world biotechnology problems. You will investigate 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 and how an understanding of these biological processes can be exploited to make industrially useful products or provide solutions to healthcare-related problems.

All students on Biotechnology programmes follow the same core modules in the first two years of study, where the programme will range from biological chemistry to cell biology 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 Biotechnology and Biochemistry before starting to specialise towards the end of Year 2 by taking a biotechnological elective module. You will specialise in the final year by selecting modules from our programme with biotechnological content leading to specialised training in Biotechnological aspects of Biochemistry. Modules may include specialisations in areas including Drug Design, Synthetic Biology, Systems Biology, Metabolic Engineering and Glycobiology. In Year 3 by studying specialised modules based around our wide-ranging, world class research expertise you will be brought to the edge of knowledge in your chosen specialised modules, taught by experts. Through laboratory, computational and field work students will learn the skills you need to design, carry out and analyse the data from biological experiments.

In late Spring/early summer term of Year 3 students will select the topic of the research project they will pursue in Year 4 and take a Research Project Preparation and Planning module/ Preparation for Research, during which they will research the literature background to their proposed project and write a research proposal.

In Year 4 students will focus on research skills and practice. There will be few didactic lectures and students will be immersed in research focussed activities that will develop a broad range of skills and knowledge to prepare them for and support them during their extended research project. Students will attend seminars and practice research methods of investigation, analysis, and communication. They will implement their research proposal prepared in Year 3 by conducting an individual research project as part of an established departmental research group. They will present their findings within the group and to wider departmental audiences in written formats as well as poster and oral presentations.

Students 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. You will develop into effective, independent Life Scientists; life-long learners with high self-efficacy; and rational and evidence-based decision makers.

A high proportion of Graduates in Biotechnology go onto further study including PhD study or enter a range of employments including, research and development in pharma, biotech, science policy, research and technical consultancy, business and finance.

BSc versus MSci

We offer both three-year and four-year programmes in Biotechnology. Three-year direct entry programmes lead to the BSc honours degree and four-year programmes lead to the MSci (Master in Science) degree. Both degrees are research-led and the common curriculum offers excellent opportunities to develop theoretical and practical skills to underpin a career in life sciences.

You will gain independent project experience in both the direct entry BSc and MSci programmes. The key differences are the MSci will give the opportunity for students to develop research skills to a higher level and provides greater depth and breadth of research experience as part of an undergraduate degree. The direct entry BSc will provide a research-led degree training with a shorter research project, but one that provides a proven route into more specialised training or research.

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 additionally students will be able to....

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 additionally students will be able to

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;

Upon successful completion of FHEQ level 7 students, the ILOs (1-13) above and **additionally students will be able to**

14. Conduct a comprehensive literature review, critically evaluating and synthesising existing research, and place it into a wider biological context.
15. Apply critical thinking skills to assess the validity and reliability of published research studies.

16. Identify knowledge gaps in their specific field of interest and be able to formulate research questions.
17. Design a research study appropriate for their research field, selecting appropriate experimental, computational, or quantitative methods and justifying their choices.
18. Communicate research effectively through written reports and presentations, tailored to diverse audiences.

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	<u>A level</u> 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. <u>International Baccalaureate (IB)</u> Minimum 38 overall 6 in Chemistry at higher level 6 in Biology, Physics or Mathematics at higher level
Non-academic Requirements	None
English Language Requirement	<u>Higher requirement</u> Please check for other Accepted English Qualifications
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 can be found at: **TBA**

Learning & 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 (that is not assessed for credit) 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 • Group/team exercises.															
<table><tr><th>Assessment Mode</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th></tr><tr><td>Examination</td><td>60</td><td>48</td><td>47</td><td>0</td></tr><tr><td>Coursework</td><td>40</td><td>52</td><td>53</td><td>100</td></tr></table>	Assessment Mode	Year 1	Year 2	Year 3	Year 4	Examination	60	48	47	0	Coursework	40	52	53	100
Assessment Mode	Year 1	Year 2	Year 3	Year 4											
Examination	60	48	47	0											
Coursework	40	52	53	100											
Academic Feedback Policy															
Coursework submission is managed by our education office and in most cases coursework is submitted electronically via Canvas and feedback is provided electronically or by a feedback form attached to items of coursework. Feedback is also provided via Canvas 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 Canvas announcement once coursework is marked. We put significant emphasis on developing students’ feedback literacy, with feedback literacy training sessions developed specifically for DoLS undergraduates with CHERS. We encourage and support our students in developing a reflective approach to feedback and feeding forward their learning to future tasks. Central to this is the reflective ePortfolio which supports student reflection on feedback and encourages them to develop action plans for future work with support from their personal tutors. We will specifically develop the ePortfolio to support students research skills development and their progress through their year 4 research project. Imperial’s Policy on Academic Feedback and guidance on issuing provisional marks to students is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/															
Re-sit Policy															
Imperial’s Policy on Re-sits is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/															
Mitigating Circumstances Policy															

Imperial's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

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

Important notice: The Programme Specifications are the result of a large curriculum and pedagogy reform implemented by the Department and supported by the Learning and Teaching Strategy of Imperial College London. The modules, structure and assessments presented in this Programme Specification are correct at time of publication but might change as a result of student and staff feedback and the introduction of new or innovative approaches to teaching and learning. You will be consulted and notified in a timely manner of any changes to this document.

Programme Structure ¹					
Year 1 – FHEQ Level 4 You will study all core modules.					
Code	Module Title	Core/ Compulsory Elective	Group	Term	Credits
LIFE40001	Biological Chemistry	Core		Autumn-Summer	15
LIFE40002	Cell Biology	Core		Autumn-Summer	10
LIFE40003	Enzymes and Metabolism	Core		Spring-Summer	10
LIFE40004	Molecular Biology	Core		Spring-Summer	15
LIFE40009	Core Skills for Life Sciences	Core		Autumn, Spring, Summer	10
Credit Total					60
Year 2 - FHEQ Level 5 You will study all core modules and one elective module from Group A, which would normally be 'Topics in Biotechnology' (LIFE50023).					
Code	Module Title	Core/ Compulsory Elective	Group	Term	Credits
LIFE50022	Structural Biology	Core		Autumn	10
LIFE50010	Genes and Genomics	Core		Autumn	7.5
LIFE50027	Bioinformatics, Programming and Statistics	Core		Autumn-Spring	7.5
LIFE50003	Tutored Dissertation	Core		Summer	5
LIFE50019	Protein Science	Core		Spring	7.5
LIFE50013	Integrative Cell Biology	Core		Spring	10
LIFE50023	Topics in Biotechnology	Core		Summer	7.5
	I-Explore	Compulsory		Autumn-Spring	5/7.5
Credit Total					60/62.5

¹ **Core** modules are those which serve a fundamental role within the curriculum, and for which achievement of the credits for that module is essential for the achievement of the target award. Core modules must therefore be taken and passed in order to achieve that named award. **Compulsory** modules are those which are designated as necessary to be taken as part of the programme syllabus. Compulsory modules can be compensated. **Elective** modules are those which are in the same subject area as the field of study and are offered to students in order to offer an element of choice in the curriculum and from which students are able to select. Elective modules can be compensated.

Year 3 - FHEQ Level 6

The list of modules is indicative. All year 3 modules are electives and students 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. Points are allocated to modules with a strong Biotechnology element that are appropriate for Biotechnology students and students have to select modules to give them a minimum of 8 Biotechnology points.

Code	Module Title	Core/ Compulsory Elective	Group	Term	Credits
LIFE60061	Stem Cells, Regeneration & Ageing	Elective	A	Autumn	15
LIFE60058	Metabolic & Network Engineering	Elective	A	Autumn	15
LIFE60055	Medical Microbiology	Elective	A	Autumn	15
LIFE60057	Plant Biotechnology & Development	Elective	B	Autumn	15
LIFE60062	Structural Biology and Drug Design	Elective	A	Autumn	15
LIFE60050	Evolutionary Applications	Elective	A	Autumn	15
LIFE60067	Bacterial Molecular Machines	Elective	A	Autumn	15
LIFE60052	Integrative Systems Biology	Elective	B	Autumn	15
LIFE60043	Advanced Topics in Parasitology & Vector Biology	Elective	B	Autumn	15
LIFE60063	Symbiosis, Plant Immunity and Disease	Elective	B	Autumn	15
LIFE60042	Advanced Topics in Infection & Immunity	Elective	B	Autumn	15
LIFE60065	The Microbiome	Elective	C	Spring	15
LIFE60048	Cancer	Elective	B	Autumn	15
LIFE60053	Mechanisms of Gene Expression	Elective	A	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: Exploring the Brain in Health & Disease	Elective	C	Spring	15
LIFE60046	Biodiversity Genomics	Elective	C	Spring	15
LIFE60041	Advanced Immunology	Elective	B	Spring	15
LIFE60068	Cellular Biophysics	Elective	C	Spring	15
LIFE60049	Disease Ecology and Epidemiology	Elective	B	Autumn	15
LIFE60069	Vaccinology	Elective	C	Spring	15

LIFE60070	Research Project Preparation and Planning	Core		Spring-Summer	15
Credit Total					60
* 'Group' refers to module grouping (e.g. a group of electives from which one/two module(s) must be chosen).					
Year 4 - FHEQ Level 7 You study all core modules.					
Code	Module Title	Core/ Compulsory Elective	Group	Term	Credits
LIFE70076	Frontiers in Life Sciences Research	Core		Autumn-Spring	15
LIFE70075	Life Sciences MSci Research Project	Core		Autumn-Summer	45
Credit Total					60

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 at least 40%, including where a module(s) has been compensated, in order for you to progress to the next year of the programme.

In Year 4 you must achieve an aggregate mark of at least 50.00% for the year including where modules have been compensated.

Final decisions on whether students progress with on the MSci or transfer off the MSci on to the BSc (Hons) will normally be made at end of Year 2. However, we will allow exit at end of Year 3 with a BSc (Hons) for students who while registered for the MSci are, for exceptional reasons, unable to enter Year 4.

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 20%, Year Three at 36.25% and Year 4 at 36.25%.

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 |

Exit awards

Students that are unsuccessful or chose to withdraw prior to the completion the MSci programme will be eligible for an exit award if they have met the requirements of the university's academic regulations and policies. The exit awards for this programme and credit requirements are listed below.

CertHE	60 ECTS which must be at level 4 or above
DipHE	120 ECTS of which a minimum of 45 credits must be at level 5 or above
BSc (Hons)	180 ECTS if which a minimum of 45 credits must be at level 5 and 45 credits must be at level 6 or above

Programme Specific Regulations

N/A

Supporting Information
The Programme Handbook is available at: TBA
The Module Handbook is available at: TBA
Imperial's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/pg/apply/requirements
Imperial's Quality & Enhancement Framework is available at: 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
Imperial College London is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a Supplemental Charter and Statutes was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of Imperial's Centenary, 8th July 2007, established Imperial as a University with the name and style of "The Imperial College of Science, Technology and Medicine". www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/
Imperial College London is regulated by the Office for Students (OfS) 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.