

**BSc Medical Biosciences**

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is intended as a reference point for prospective students, current students, external examiners and academic and support staff involved in delivering the programme and enabling student development and achievement.

**Programme Information**

Award(s)	BSc			
Programme Title	Medical Biosciences			
Programme Code	B101			
Awarding Institution	Imperial College London			
Teaching Institution	Imperial College London			
Faculty	Faculty of Medicine			
Department	School of Medicine			
Associateship	Imperial College School of Medicine			
Mode and Period of Study	3 academic years, full time			
Cohort Entry Points	Annually in October			
Relevant <a href="#">QAA Benchmark Statement(s)</a> and/or other external reference points	<a href="#">Honours Degrees in Biomedical Science</a> <a href="#">Honours Degrees in Biosciences</a>			
Total Credits	ECTS:	180-181	CATS:	360-362
<a href="#">FHEQ Level</a>	Level 6			
<a href="#">EHEA Level</a>	1 <sup>st</sup> cycle			
External Accreditor(s)	N/A			
<b>Specification Details</b>				
Student cohorts covered by specification	2022/23 entry			
Person(s) responsible for the specification	Professor Alison McGregor, Director of Undergraduate Science & Head of BSc Medical Biosciences			
Date of introduction of programme	October 2017			
Date of programme specification/revision	July 2022			

## Description of Programme Contents

Our interdisciplinary course offers an innovative approach to learning.

You will study fundamental human biology and the molecular basis of human disease. Modules on cellular and molecular biology and pharmacology underpin, for example, infectious diseases and immunology, cancer and neurobiology.

During the unique and exciting Lab Pod modules, you will work on real life research questions in a learning environment that mirrors an authentic research laboratory. You will explore a real scientific hypothesis and will be given opportunities to design, choose and perform experiments appropriate to test this hypothesis.

In addition, the Lab Pods will integrate experiences that will develop and consolidate theoretical topics covered throughout the year. They will encourage you to develop your understanding of the causes of diseases such as cancer, diabetes, neurodegeneration and autoimmunity, and experience how scientists work to develop treatments and cures.

You will learn to think like a scientist with a research-intensive, laboratory-focused curriculum, whilst workshops on critical health issues and modules in science communication and ethics will broaden your outlook and employability skills.

Our extensive and fully integrated transferable skills programme is designed to develop personal characteristics that employers value, including effective time management and resilience, good interpersonal, leadership, analytical and problem solving skills, as well as an awareness of ethics, coupled with excellent verbal and written presentation skills.

In your third year you will choose specialist modules that examine global health problems, and undertake a final year project. For this project you will have the opportunity to complete a 20-week intensive research project, a work placement, or a dissertation on a biomedical science topic. Placement possibilities may include industry, hospitals, publishing houses, museums, charities and government agencies.

Students interested in careers which do not involve laboratory research will be given the choice to pursue a shorter final year project, either in the form of a dissertation or placement in any topic related to biomedical sciences. You will be required to complement this with additional taught modules. Students who love human biology but do not share the same enthusiasm for practical research will, therefore, still find their niche in this course.

## Learning Outcomes

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: [www.imperial.ac.uk/students/academic-support/graduate-attributes](http://www.imperial.ac.uk/students/academic-support/graduate-attributes)

Upon successful completion of the programme a typical student is expected to be able to:

- Demonstrate excellent independent critical thinking and knowledge of biomedical sciences;
- Identify critical health problems facing humanity in the 21<sup>st</sup> century and demonstrate awareness of how these are being, or can be, tackled;
- Generate a biomedical scientific hypothesis that is inherently falsifiable and which can, therefore, be experimentally challenged;
- Experimentally evaluate a hypothesis in a professional and competent manner by performing experiments in a systematic manner, with appropriate negative and positive controls, whilst adhering to good lab practice and observing Health & Safety guidelines;
- Critically solve problems, including experimental troubleshooting and designing tools to address them;
- Generate thorough records of all research data gathered by maintaining a carefully documented Lab Diary;
- Explain the fundamental principles of molecular biology and integrate them with cellular biology thereby illustrating how homeostasis is maintained in the whole organism;
- Interpret complex data, assimilate it and summarise it in a more manageable format;
- Critique current knowledge within biomedical sciences and demonstrate awareness of 'hot', controversial or not yet well-understood topics and to evaluate ways to further knowledge and understanding;
- Demonstrate excellent verbal and written communication and presentation skills;
- Generate a professional *curriculum vitae* and a credible job application;
- Demonstrate a high level of self-awareness, fair play behaviour at all times and a concern for society.

## Entry Requirements

Academic Requirement	Grade Requirement	Minimum <b>AAA</b> overall
	Subject Requirements	<p><b>A</b> in Biology or Human Biology  <b>A</b> in Chemistry, Mathematics, Further Mathematics or Physics</p> <p>Where applicants are studying Mathematics or Further Mathematics, the third subject must be in a non-Mathematics subject.</p> <p><b>Pass</b> in the practical science assessment for all science subjects which form part of the offer</p>
	Excluded Subjects	<p>General Studies            Critical Thinking</p>
	Grade Requirement	Minimum <b>38</b> overall

International Baccalaureate (IB)	Subject Requirements	6 in Biology at higher level 6 in Chemistry, Mathematics or Physics at higher level
GCSE Requirements		None
English Language Requirement		<a href="#">Higher requirement</a>
Admissions Tests		None
Interview		Applicants will not normally be interviewed.
The programme's competency standards document can be found at: <a href="#">[TBC]</a>		
<b>Learning &amp; Teaching Strategy</b>		
Scheduled Learning & Teaching Methods		<ul style="list-style-type: none"> <li>• Interactive sessions</li> <li>• Flipped lectures</li> <li>• Team-based learning</li> <li>• Tutorials</li> <li>• Seminars</li> <li>• Laboratory demonstrations and experiments</li> <li>• Practical classes and field work</li> <li>• Guest lectures</li> <li>• Lectures</li> <li>• Presentations</li> </ul>
E-learning & Blended Learning Methods		<ul style="list-style-type: none"> <li>• Virtual Learning Environment (VLE)</li> <li>• Online materials</li> <li>• Online voting systems</li> <li>• Online discussion forums</li> <li>• Interactive content including video and quizzes</li> </ul>
Project and Placement Learning Methods		<ul style="list-style-type: none"> <li>• Final year project</li> <li>• Work placement</li> </ul>
<b>Assessment Strategy</b>		
Assessment Methods		<ul style="list-style-type: none"> <li>• Written exams</li> <li>• Computer-based exams</li> <li>• Multiple choice questionnaires</li> <li>• Digital storytelling</li> <li>• Lab books</li> <li>• Experiment write-up</li> <li>• Creative writing</li> <li>• Data handling</li> <li>• Compiled assessment from TBL sessions, including quizzes</li> <li>• Group reports</li> </ul>

	<ul style="list-style-type: none"> <li>• Peer assessment of group reports</li> <li>• Lab work</li> <li>• Grant applications</li> <li>• Research preparation plan</li> <li>• Scientific paper</li> <li>• Presentations</li> <li>• Dissertation, plus dissertation preparation</li> <li>• Placement report</li> <li>• Business case</li> <li>• Online tests</li> <li>• Essays</li> <li>• Continuous assessments</li> <li>• Reports</li> </ul>
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#### Academic Feedback Policy

Feedback may be provided in one of a number of formats, including:

- Oral (e.g. face to face during or after lectures, video)
- Personal (e.g. discussion with academics during office hours)
- Interactive (e.g. TBL, peer-to-peer, online quizzes)
- Written (e.g. solutions, model answers)

Feedback will be provided on coursework and practical assessments within 2 weeks of submission.

#### Re-sit Policy

The College's Policy on Re-sits is available at: [www.imperial.ac.uk/registry/exams/resit](http://www.imperial.ac.uk/registry/exams/resit)

#### Mitigating Circumstances Policy

The College's Policy on Mitigating Circumstances is available at: [www.imperial.ac.uk/registry/exams](http://www.imperial.ac.uk/registry/exams)

## Assessment Structure

### Marking Scheme

#### Year One

A student must:

- Achieve an overall aggregate mark of at least 40%
- Achieve a mark of at least 40% in each module

#### Year Two

A student must:

- Achieve an overall aggregate mark of at least 40%
- Achieve a mark of at least 40% in each module

#### Year Three

A student must:

- Achieve an overall aggregate mark of at least 40%
- Achieve a mark of at least 40% in each module

#### Final Degree Classifications

Third – a student must achieve an aggregate mark of 40%

Lower Second – a student must achieve an aggregate mark of 50%

Upper Second – a student must achieve an aggregate mark of 60%

First – a student must achieve an aggregate mark of 70%

Year	% Year Weighting	Module	% Module Weighting	
Year One	7.5%	Molecular & Cellular Biology	25%	
		Chemistry of Biological Interactions	12.5%	
		Integrative Body Systems	25%	
		Statistics	12.5%	
		Lab Pod I	25%	
Year Two	35%	Genetics & Genomics	18.2r%	
		I-Explore	Pass/Fail	
		Lab Pod II	27.3r%	
		<i>4 elective modules in total from groups (A) and (B)</i>	54.5%	
Year Three	57.5%	EITHER:	Laboratory Based Research Project	75%
			<i>1 module each from groups (C), (D), and (E)</i>	8.3r% each
		OR:	<i>1 module from elective group (F)</i>	50%
			Science Communication & Public Engagement (10 ECTS)	16.7r%
			Creative Reflection on Professional Practice	8.3r%
			<i>1 module each from groups (C), (D), and (E)</i>	8.3r% each

**Indicative Module List**

Code	Title	Core/ Elective	Year	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	% Written Exam	% Course- work	% Practical	FHEQ Level	ECTS
MCB	Molecular & Cellular Biology	Core	1	48	327	0	375	50%	30%	20%	4	15.0
CBI	Chemistry of Biological Interactions	Core	1	24	163.5	0	187.5	50%	50%	0%	4	7.5
INTS	Integrative Body Systems	Core	1	48	327	0	375	50%	50%	0%	4	15.0
STAT	Statistics	Core	1	24	163.5	0	187.5	50%	50%	0%	4	7.5
LP1	Lab Pod I	Core	1	157	218	0	375	33%	33%	33%	4	15.0
GEN	Genetics & Genomics	Core	2	36	214	0	250	60%	40%	0%	5	10
LP2	Lab Pod II	Core	2	157	218	0	375	50%	50%	0%	5	15.0
TBC	I-Explore	Compulsory	2									5
MHD	Microbiome in Health & Disease	Elective (A)	2	24	163.5	0	187.5	60%	30%	10%	5	7.5
PHAR	Pharmacology & Toxicology	Elective (A)	2	29	163.5	0	192.5	60%	40%	0%	5	7.5
SCRB	Stem Cells & Reproductive Biology	Elective (A)	2	24	163.5	0	187.5	60%	0%	40%	5	7.5
CBIO	Cancer Biology	Elective (B)	2	24	163.5	0	187.5	60%	0%	40%	5	7.5
CTB	Cardiovascular & Thoracic Biology	Elective (B)	2	24	163.5	0	187.5	60%	40%	0%	5	7.5
IMI	Immunology & Inflammation	Elective (B)	2	24	163.5	0	187.5	60%	0%	40%	5	7.5

Indicative Module List												
Code	Title	Core/ Elective	Year	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	% Written Exam	% Course- work	% Practical	FHEQ Level	ECTS
NEU	Neuroscience	Elective (B)	2	24	163.5	0	187.5	60%	40%	0%	5	7.5
LABP	Laboratory Based Research Project	Elective	3	10	395	720	1125	0%	75%	25%	6	45.0
DESD	Designing Drugs for the 21 <sup>st</sup> Century	Elective (C)	3	16	109	0	125	0%	50%	50%	6	5.0
PMED	Precision Medicine	Elective (C)	3	16	109	0	125	0%	50%	50%	6	5.0
REGM	Regenerative Medicine	Elective (C)	3	16	109	0	125	0%	50%	50%	6	5.0
ITM	Innovation and Translation in Medicine	Elective (C)	3	16	109	0	125	0%	50%	50%	6	5.0
GLOH	Global Health	Elective (D)	3	16	109	0	125	0%	50%	50%	6	5.0
SCPE	Science Communication & Public Engagement (5 ECTS)	Elective (D)	3	16	109	0	125	0%	50%	50%	6	5.0
BDS	Biomedicine Data Science	Elective (D)	3	16	109	0	125	0%	50%	50%	6	5.0
EMR	Ethics and Medical Regulation	Elective (D)	3	16	106	0	125	0%	50%	50%	6	5.0
BOA	Biology of Ageing	Elective (E)	3	16	109	0	125	0%	50%	50%	6	5.0
OBD	Obesity & Diabetes	Elective (E)	3	16	109	0	125	0%	50%	50%	6	5.0
NANO	Nanobiology & Biomaterials	Elective (E)	3	16	109	0	125	0%	50%	50%	6	5.0

**Indicative Module List**

Code	Title	Core/ Elective	Year	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	% Written Exam	% Course- work	% Practical	FHEQ Level	ECTS
TAR	Targeting Antimicrobial Resistance	Elective (E)	3	16	109	0	125	0%	50%	50%	6	5.0
SCPE2	Science Communication & Public Engagement (10 ECTS)	Elective	3	60	190	0	250	0%	70%	30%	6	10.0
CREP	Creative Reflection on Professional Practice	Elective	3	30	95	0	125	0%	100%	0%	6	5.0
LITP	Literature Based Research Project	Elective (F)	3	10	740	0	750	0%	75%	25%	6	30.0
WPBP	Work Placement Based Project	Elective (F)	3	5	245	500	750	0%	75%	25%	6	30.0

## Supporting Information

The Programme Handbook is available at: [TBC]

The Module Handbook is available at: [TBC]

The College's entry requirements for undergraduate programmes can be found at:  
[www.imperial.ac.uk/study/ug/apply/requirements/](http://www.imperial.ac.uk/study/ug/apply/requirements/)

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

The College's Academic and Examination Regulations can be found at:  
<http://www3.imperial.ac.uk/registry/proceduresandregulations/regulations>

Imperial College 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 the College's Centenary, 8th July 2007, established the College as a University with the name and style of "The Imperial College of Science, Technology and Medicine".  
<http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters-statutes-ordinances-and-regulations/>

Imperial College London is regulated by the Office for Students (OfS)  
<https://www.officeforstudents.org.uk/>

## Modifications

Addition of programme learning outcome "Demonstrate a foundation of knowledge in core business disciplines"	Programmes Committee	13 December 2016	PC.2016.48
Addition of programme learning outcome "Demonstrate the capability to apply this knowledge"	Programmes Committee	13 December 2016	PC.2016.48
Addition of programme learning outcome "Continue to develop their personal skill set"	Programmes Committee	13 December 2016	PC.2016.48
Change to the year 3 programme structure	Programmes Committee	13 December 2016	PC.2016.48
Change of learning & teaching hours, and independent study hours for the module (MCB) Molecular & Cellular Biology	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (MCB) Molecular & Cellular Biology	Programmes Committee	13 December 2016	PC.2016.48
Change of module title (CBI) from "Protein Chemistry & Bioenergetics" to "Chemistry of Biological Interactions"	Programmes Committee	13 December 2016	PC.2016.48

Change of assessment weightings for the module (CBI) Chemistry of Biological Interactions	Programmes Committee	13 December 2016	PC.2016.48
Change of module title (INTS) from "Organisation of Integrative Systems" to "Integrative Body Systems"	Programmes Committee	13 December 2016	PC.2016.48
Change of learning & teaching hours, and independent study hours for the module (INTS) Integrative Body Systems	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (INTS) Integrative Body Systems	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (STAT) Statistics	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (LP1) Lab Pod I	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (GEN) Genetics & Genomics	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (LP2) Lab Pod II	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (IMI) Immunology & Inflammation	Programmes Committee	13 December 2016	PC.2016.48
Change of module title (NEU) from "Neurobiology" to "Neuroscience"	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (NEU) Neuroscience	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (MHD) Microbiome in Health & Disease	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (CTB) Cardiovascular & Thoracic Biology	Programmes Committee	13 December 2016	PC.2016.48
Change of module title (PHAR) from "Pharmacology" to "Pharmacology & Toxicology"	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (PHAR) Pharmacology & Toxicology	Programmes Committee	13 December 2016	PC.2016.48

Change of assessment weightings for the module (SCRB) Stem Cells & Reproductive Biology	Programmes Committee	13 December 2016	PC.2016.48
Change of independent study hours for the module (BSCI) Data Science	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (BSCI) Data Science	Programmes Committee	13 December 2016	PC.2016.48
Change of independent study hours for the module (SMED) Stratified Medicine	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (SMED) Stratified Medicine	Programmes Committee	13 December 2016	PC.2016.48
Change of independent study hours for the module (OBD) Obesity & Diabetes	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (OBD) Obesity & Diabetes	Programmes Committee	13 December 2016	PC.2016.48
Change of independent study hours for the module (BOA) Biology of Ageing	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (BOA) Biology of Ageing	Programmes Committee	13 December 2016	PC.2016.48
Change of independent study hours for the module (TAR) Targeting Antimicrobial Resistance	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (TAR) Targeting Antimicrobial Resistance	Programmes Committee	13 December 2016	PC.2016.48
Change of independent study hours for the module (REGM) Regenerative Medicine	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (REGM) Regenerative Medicine	Programmes Committee	13 December 2016	PC.2016.48
Change of independent study hours for the module (NANO) Nanotechnology & Bioengineering	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (NANO) Nanotechnology & Bioengineering	Programmes Committee	13 December 2016	PC.2016.48

Change of independent study hours for the module (DESD) Designing Drugs for the 21 <sup>st</sup> Century	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (DESD) Designing Drugs for the 21 <sup>st</sup> Century	Programmes Committee	13 December 2016	PC.2016.48
Change of independent study hours for the module (GLOH) Global Health	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (GLOH) Global Health	Programmes Committee	13 December 2016	PC.2016.48
Change of learning & teaching hours, and independent study hours for the module (SCPE) Science Communication & Public Engagement	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (SCPE) Science Communication & Public Engagement	Programmes Committee	13 December 2016	PC.2016.48
Change of ECTS value from 7.5 to 5 for the module (SCPE) Science Communication & Public Engagement	Programmes Committee	13 December 2016	PC.2016.48
Change of learning & teaching hours, and independent study hours for the module (SCPE2) Science Communication & Public Engagement 2	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (SCPE2) Science Communication & Public Engagement 2	Programmes Committee	13 December 2016	PC.2016.48
Change of ECTS value from 30 to 10 for the module (SCPE2) Science Communication & Public Engagement 2	Programmes Committee	13 December 2016	PC.2016.48
Change of module title (LITP) from “‘Dry’ Research Project” to “Literature Based Research Project”	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (LITP) Literature Based Research Project	Programmes Committee	13 December 2016	PC.2016.48
Change of module title (WPBP) from “Placement Project” to “Work Placement Based Project”	Programmes Committee	13 December 2016	PC.2016.48

Change of learning & teaching hours, and independent study hours for the module (WPBP) Work Placement Based Project	Programmes Committee	13 December 2016	PC.2016.48
Change of assessment weightings for the module (WPBP) Work Placement Based Project	Programmes Committee	13 December 2016	PC.2016.48
Removal of programme learning outcome "Demonstrate a foundation of knowledge in core business disciplines"	Programmes Committee	06 April 2017	Chair's Action
Removal of programme learning outcome "Demonstrate the capability to apply this knowledge"	Programmes Committee	06 April 2017	Chair's Action
Removal of programme learning outcome "Continue to develop their personal skill set"	Programmes Committee	06 April 2017	Chair's Action
Amend the Learning & Teaching hours, Learning Outcomes and teaching staff of the modules LP1 Lab Pod 1 and LP2 Lab Pod 2	Programmes Committee	27 March 2018	PC.2017.55 a
Removal of Year 3 module SMED Stratified Medicine, and the consolidation of learning outcomes with those of DSCI Data Science to create the new module PMED Precision Medicine	Programmes Committee	27 March 2018	PC.2017.55 b