Imperial College London

Programme Specification (Undergraduate)

BSc Biochemistry

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				
Programme Title	Biochemistry			
Award(s)	BSc			
Programme Code	C700			
Associateship	Associateship of the Royal College of Science (ARCS)			
Awarding Institution	Imperial College London			
Teaching Institution	Imperial College London			
Faculty	Faculty of Natural Sciences			
Department	Department of Life Sciences			
Main Location of Study	South Kensington Campus			
Mode and Period of Study	3 academic years full-time			
Cohort Entry Points	Annually in October			
Relevant QAA Benchmark Statement(s) and/or other external reference points	Biosciences			
Total Credits	ECTS:	180	CATS:	360
FHEQ Level	Level 6			
EHEA Level	1st cycle			
External Accreditor(s)	None			
Specification Details				
Student cohorts covered by specification	2017/18 entry			
Person responsible for the specification	Dr Huw Williams			
Date of introduction of programme				

Date of programme specification/revision	August 2017

Programme Overview

The BSc Biochemistry programme is a three-year degree. In the first two years students will tackle core subjects to ensure that they receive a solid grounding in fundamentals.

Students will then specialise in the final year, making their choice from a wide range of options and research projects.

Our biochemistry and biotechnology courses contain topics covering all aspects of the applied biochemistry and the biotechnology industry, such as intellectual property and patents, commercialising technology, and entrepreneurship, with lectures and case studies from biotechnology business leaders and academics.

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

Knowledge and Understanding of:

- Biological chemistry; molecular biology and genetics; cell biology; protein and enzyme structure and function; (Year 1)
- Genes and genomics; macromolecular structure and function; integrative cell biology; (Year 2)
- Advanced knowledge and understanding of three specialist modules; (Year 3)

Intellectual Skills (thinking) skills - able to:

- Analyse and solve biochemistry-based problems;
- Integrate and evaluate information;
- Formulate and test hypotheses using appropriate experimental design and statistical analysis of data;
- Plan, conduct and write-up a programme of original research

Practical skills – able to:

- Plan and execute safely a series of experiments;
- Use laboratory methods to generate data;
- Analyse experimental results and determine their strength and validity;
- Prepare technical reports;
- Give technical presentations;
- Use the scientific literature effectively;
- Use computational tools and packages.

Transferable skills – able to:

- Communicate effectively through oral presentations, computer processing and presentations, and written reports;
- Work independently and as part of a team
- Integrate and evaluate information from a variety of sources;
- Use Information and Communications Technology;
- Manage resources and time;

- Learn independently with open-mindedness and critical enquiry;
- Learn effectively for the purpose of continuing professional development.

Entry Requirements		
Academic Requirement	Grade Requirement	Normally minimum **AAA** overall
	Subject Requirements	**A** in Chemistry **A** in another science subject (Biology is preferred but not mandatory) or Mathematics (or a comparable qualification recognised by the College)
	Excluded Subjects	Key Skills Critical Thinking General Studies
International Baccalaureate (IB)	Grade Requirement	Minimum **38** overall
	Subject Requirements	**6** in Chemistry at higher level **6** in Biology or Mathematics at higher level (or a comparable qualification recognised by the College)
GCSE Requirements		**B** in Mathematics, Chemistry and Biology (or Combined Sciences)
English Language Requirement		Higher requirement IELTS score of 7.0 overall (minimum 6.5 in all elements)
Admissions Tests		None
Interview		No
The programme's competency standards documents can be found at: http://www.imperial.ac.uk/students/academic-support/graduate-attributes/		

Learning & Teaching Strategy	
Scheduled Learning & Teaching Methods	• Laboratory • Lectures • Tutorials • Seminars
E-learning & Blended Learning Methods	• Computer-based work
Project and Placement Learning Methods	• Group project • Research project/dissertation
Placement Learning Methods	• Site visits

Assessment Strategy	
Assessment Methods	• Written Examinations • Coursework • Laboratory write-ups • Essays • Reports • Dissertations • Presentations • Individual research project report • Viva
Academic Feedback Policy	
Coursework feedback is provided by a feedback form attached to items of coursework. Feedback is also provided via Blackboard on automatically-assessed pieces of coursework and on formative MCQ quizzes. Personal tutors hold timetabled tutorials at the start of the academic year to give feedback on examination performance and can be approached by their tutees at any point in the year for further guidance. The undergraduate teaching office repeatedly informs individual staff via email when coursework is due back at the appropriate time. The Director of Undergraduate Studies routinely monitors the quality and quantity of feedback provided on marked coursework. In some instances, generic class feedback is returned to all students via email or a Blackboard announcement once coursework is marked.	
Re-sit Policy	
The College's Policy on Re-sits is available at: http://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/	
Mitigating Circumstances Policy	
The College's Policy on Mitigating Circumstances is available at: http://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/	

Programme Structure

Year One	Pre-session	Term One	Term Two	Term Three	Term Four
Core Modules	1	2	2		0
Elective Modules	0	0	0	0	0
Projects	0	0	0	0	0
Year Two	**Pre-session**	**Term One**	**Term Two**	**Term Three**	**Term Four**
Core Modules	0	2	2	0	0
Elective Modules	0	0	0	1	0

Projects	0	0	1	0	0
Year Three	Pre-session	Term One	Term Two	Term Three	Term Four
Core Modules	0	0	0	0	0
Elective Modules	0	2	1	0	0
Projects	0	0	0	0	

Assessment Dates & Deadlines	
Year One	
Written Examinations	January and June
Coursework Assessments	Continuous
Project Deadlines	N/A
Practical Assessments	Continuous
Year Two	
Written Examinations	January and June
Coursework Assessments	Continuous
Project Deadlines	N/A
Practical Assessments	Continuous
Year Three	
Written Examinations	January and February
Coursework Assessments	Continuous
Project Deadlines	June
Practical Assessments	Continuous
Assessment Structure	
Marking Scheme	

Regulation of Assessment
Minimum pass mark is 40% overall for each course module, which must include a mark of at least 35% in the coursework component and a mark of at least 35% in the examination.
For course modules that include a written examination, coursework typically contributes 20- 25% of the total marks available.
Assessment details are provided in the First, Second and Third Year Student Handbooks.
The final degree mark is calculated from the mean mark achieved in Years 1, 2 and 3.
The year weightings for students admitted in or after October 2013 are 11.1: 33.3: 55.6, respectively.
The year weightings for students admitted before October 2013 are 5:35:60.
To qualify for the award of BSc Honours, students must pass all courses.

Assessment Rules and Degree Classification:
For undergraduate programmes classification of degrees will be according to the following range of marks:
First class 70 - 100%
Second class (upper division) 60 - 69.9%
Second class (lower division) 50 - 59.9%
Third class 40 - 49.9%
Fail 0-39%

Year	% Year Weighting	Module	% Module Weighting
Year One	11.1%	Molecular Biology	25%
		Proteins and Enzymes	25%
		Biological Chemistry	25%
		Cell Biology	25%
Year Two	33.3%	Genes and Genomics	16.66r%
		Integrative Cell Biology	16.66r%
		Fundamentals of Molecular Biochemistry	16.66r%
		Protein Science	16.66r%
		Tutored Dissertation	11.6r%
		One module from elective group (A)	10%
		One module from elective group (B)	11.6r%%
Year Three	55.6%	***EITHER:*** Laboratory Based Research Project ***OR*** Literature Based Dissertation ***AND*** Science Communication	35%
		One module from elective group (C)	21.66r%
		One module from elective group (D)	21.66r%
		One module from elective group (E)	21.66r%

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
LS1-MB	Molecular Biology	CORE	1	96	279	0	375	75%	10%	15%	4	15.00
LS1-PE	Proteins and Enzymes	CORE	1	65	310	0	375	75%	13%	12%	4	15.00
LS1-BC	Biological Chemistry	CORE	1	74	301	0	375	75%	5%	20%	4	15.00
LS1-CB	Cell Biology	CORE	1	61	314	0	375	75%	8%	17%	4	15.00
LS2-GG	Genes and Genomics	CORE	2	49	201	0	250	75%	7%	18%	5	10.00
LS2-ICB	Integrative Cell Biology	CORE	2	41	209	0	250	75%	0%	25%	5	10.00
LS2-MSF1	Fundamentals of Molecular Biochemistry	CORE	2	56	194	0	250	75%	14%	11%	5	10.00
LS2-MSF2	Protein Science	CORE	2	52	198	0	250	75%	14%	11%	5	10.00
LS2-TDBC	Tutored Dissertation	CORE	2	4	171	0	175	0%	100%	0%	5	7.00
LS2-TB	Topics in Biotechnology	ELECTIVE (A)	2	44	129	0	175	75%	0%	25%	5	7.00
LS2-CCB	Challenges in Cell Biology	ELECTIVE (A)	2	42	133	0	175	75%	12.5%	12.5%	5	7.00
LS2-AMBC	Applied Molecular Biochemistry	ELECTIVE (A)	2	39	136	0	175	75%	0	25%	5	7.00
N/A	Horizons	ELECTIVE (B)	2	Various			150	Various				6.00

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
N/A	Business for Professional Engineers & Scientists	ELECTIVE (B)	2	Various			150	Various				6.00
LS3-FYRP	Lab Based Research Project	CORE*	3	360	165	0	525	0%	100%	0%	6	21.00
LS3-FYRD	Literature Based Dissertation	CORE*	3	10	315	0	325	0%	100%	0%	6	13.00
LS3-SCICOMM	Science Communication	CORE*	3	31	169	0	200	0%	100%	0%	6	8.00
LS3-ATPMB	Plant Biotechnology and Development	ELECTIVE (C)	3	56	269	0	325	75%	9%	16%	6	13.00
LS3-DRIBS	Damage and Repair in Biological Systems	ELECTIVE (C)	3	58.5	266.5	0	325	75%	17%	8%	6	13.00
LS3-M3D	Structural Biology & Drug Design	ELECTIVE (C)	3	73	252	0	325	75%	20%	5%	6	13.00
LS3-MM	Medical Microbiology	ELECTIVE (C)	3	52	273	0	325	75%	5%	20%	6	13.00
LS3-SCRA	Stem Cells, Regeneration and Ageing	ELECTIVE (C)	3	50	275	0	325	75%	0%	25%	6	13.00
LS3-NR	Neuroscience Research	ELECTIVE (C)	3	46	279	0	325	75%	5%	20%	6	13.00
LS3-PDB	Principles of Development	ELECTIVE (C)	3	45	280	0	325	75%	20%	5%	6	13.00
LS3-MNE	Metabolic and Network Engineering	ELECTIVE (C)	3	62	263	0	325	75%	9%	16%	6	13.00
LS3-ATII	Advanced Topics in Immunity and Infection	ELECTIVE (D)	3	57	268	0	325	75%	25%	0%	6	13.00

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
LS3-MPMI	Symbiosis, Plant Immunity and Disease	ELECTIVE (D)	3	48	277	0	325	75%	17.50%	7.50%	6	13.00
LS3-ATPVB	Advanced Topics in Parasitology and Vector Biology	ELECTIVE (D)	3	43.5	281.5	0	325	75%	22%	3%	6	13.00
LS3-ISB	Integrative Systems Biology	ELECTIVE (D)	3	73	252	0	325	75%	5%	20%	6	13.00
LS3-MGE	Mechanisms of Gene Expression	ELECTIVE (D)	3	38	287	0	325	75%	10%	15%	6	13.00
LS3-ABECB	Advanced Bacterial and Eukaryotic Cell Biology	ELECTIVE (D)	3	43	282	0	325	75%	15%	10%	6	13.00
LS3-CANCER	Cancer	ELECTIVE (D)	3	56	269	0	325	75%	5%	20%	6	13.00
LS3-ME	Microbial Ecology	ELECTIVE (D)	3	45	280	0	325	75%	20%	5%	6	13.00
LS3-SB	Synthetic Biology	ELECTIVE (E)	3	52	273	0	325	75%	10%	15%	6	13.00
LS3-BDG	Biodiversity Genomics	ELECTIVE (E)	3	40	285	0	325	75%	10%	15%	6	13.00
LS3-MBBI	Molecular Basis of Bacterial Infection	ELECTIVE (E)	3	53	272	0	325	75%	0%	25%	6	13.00
LS3-BAP	Biotechnology Applications of Proteins	ELECTIVE (E)	3	62	263	0	325	75%	5%	20%	6	13.00
LS3-BIOINF	Bioinformatics	ELECTIVE (E)	3	61	264	0	325	75%	20%	5%	6	13.00
LS3-MG	Medical Glycobiology	ELECTIVE (E)	3	63	262	0	325	75%	16.50%	8.50%	6	13.00

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
LS3-SN	Systems Neuroscience	ELECTIVE (E)	3	44	281	0	325	75%	12.50%	12.50%	6	13.00
LS3-AI	Advanced Immunology	ELECTIVE (E)	3	54	271	0	325	75%	17.5%	7.5%	6	13.00

*See Y3 table on page 5 (above).

Supporting Information
The Programme Handbook is available at: http://www.imperial.ac.uk/life-sciences/undergraduate/biochemistry-and-biotechnology/
The Module Handbook is available at: http://www.imperial.ac.uk/life-sciences/undergraduate/biochemistry-and-biotechnology/
The College's entry requirements for undergraduate programmes can be found at: www.imperial.ac.uk/study/ug/apply/requirements/
The College's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance
The College's Academic and Examination Regulations can be found at: http://www.imperial.ac.uk/about/governance/academic-governance/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 Higher Education Funding Council for England (HEFCE) http://www.hefce.ac.uk/reg/register/

Modifications

Modification	Committee	Date	Paper
Introduce new elective module LS3-AI (Advanced Immunology)	Programmes Committee	25 October 2016	PC.2016.35
Introduce new elective module LS3-DEE (Disease Ecology and Epidemiology)	Programmes Committee	25 October 2016	PC.2016.35
Introduce new elective module LS3-ME (Microbial Ecology)	Programmes Committee	25 October 2016	PC.2016.35
Introduce new elective module LS3-PDB (Principles of Development)	Programmes Committee	25 October 2016	PC.2016.35
Introduce new elective module LS3-ABECB	Departmental Teaching Committee	5 December 2016	
Macromolecules in 3 Dimensions name changed to Structural Biology & Drug Design	Departmental Teaching Committee	5 December 2016	

Suspend new elective module LS3-DEE (Disease Ecology and Epidemiology)	Departmental Teaching Committee	27 September 2017	