Programme Specification Document

Approved, 2022.03

Overview

Programme Code	31900
Programme Title	Biochemistry
Awarding Institution	Liverpool John Moores University
Programme Type	Degree
Language of Programme	All LJMU programmes are delivered and assessed in English
Programme Leader	Iain Hargreaves
Link Tutor(s)	

Awards

Award Type	Award Description	Award Learning Outcomes
Target Award	Bachelor of Science with Honours - BSH	See Learning Outcomes Below
Recruitable Target	Bachelor of Science with Honours (SW) - SBSH	See Learning Outcomes Below
Alternative Exit	Diploma in Higher Education (SW) - SDHE	Generate ideas through the analysis of concepts at an abstract level, with a command of highly specialised skills and the formulation of responses to concrete and abstract problems. Accept responsibility for group and personal work. Analyse and evaluate information, demonstrating significant judgement across a broad range of Biochemistry/Molecular Bioscience related areas.
Alternative Exit	Bachelor of Science (SW) - SBS	Demonstrate a broad and comparative knowledge of the general scope of the subject, its different areas and applications, and its interactions with related subjects. A detailed knowledge of a defined subject or a more limited coverage of a specialist area balanced by a wider range of study. In each case, specialised study will be informed by current developments in the subject. Demonstrate a critical understanding of the essential theories, principles and concepts of the subject(s) and of the ways in which these are developed through the main methods of enquiry in the subject.
Alternative Exit	Certificate of Higher Education - CHE	Apply a broad knowledge base, incorporating theoretical concepts and employing a wide range of specialised skills to real and theoretical Biochemistry/Molecular Bioscience applications. Evaluate information using it to plan and develop investigative strategies and to determine solutions to a wide range of scientific problems. Operate in a range of science contexts, and take responsibility for their contributions and outputs.
Alternative Exit	Diploma of Higher Education - DHE	Generate ideas through the analysis of concepts at an abstract level, with a command of highly specialised skills and the formulation of responses to concrete and abstract problems. Accept responsibility for group and personal work. Analyse and evaluate information, demonstrating significant judgement across a broad range of Biochemistry/Molecular Bioscience related areas.
Alternative Exit	Bachelor of Science - BS	Demonstrate a broad and comparative knowledge of the general scope of the subject, its different areas and applications, and its interactions with related subjects. A detailed knowledge of a defined subject or a more limited coverage of a specialist area balanced by a wider range of study. In each case, specialised study will be informed by current developments in the subject. Demonstrate a critical understanding of the essential theories, principles and concepts of the subject(s) and of the ways in which these are developed through the main methods of enquiry in the subject.

Alternate Award Names	

External Benchmarks

Subject Benchmark Statement	UG-Biosciences (2019)

Programme Offering(s)

Mode of Study, Mode of Delivery	Intake Month	Teaching Institution	Programme Length
Sandwich Year Out, Face to Face	September	LJMU Taught	4 Years
Full-Time, Face to Face	September	LJMU Taught	3 Years

Aims and Outcomes

Educational Aims of the Programme

To provide graduates with a wide knowledge and understanding of core subject matter which enables the student to pursue a career in Biochemistry/Molecular Bioscience related employment. To enable students to acquire the personal transferable skills needed by science graduates, including research skills to enable them to undertake postgraduate study. To develop study, communication and information technology skills sufficiently to allow graduates to engage in life long learning and to enable students to enter non-subject specific employment at graduate level. To provide students from a wide variety of educational backgrounds with a high quality learning experience in a supportive environment. The syllabus of the Biochemistry programme conforms to the QAA Biosciences benchmark statement (2019) and offers the possibility of a sandwich route or Erasmus placement to further enhance transferable and laboratory skills, and thus graduate employability. In addition to the aims for the main target award, the sandwich programme aim is to provide students with an extended period of work experience at an approved partner that will complement their programme of study at LJMU. This will give the students the opportunity to develop professional skills relevant to their programme of study, as well as attitude and behaviours necessary for employment in a diverse and changing environment.

Learning Outcomes

Code	Description
PLO1	Appreciate fundamental concepts and principles of Molecular Bioscience/Biochemistry as given in the QAA Subject Benchmark Statement.
PLO2	Recognise the moral and ethical issues of investigations and appreciate the need for ethical standards and professional codes of conduct.
PLO3	Demonstrate competence and progressive development in the basic and core experimental skills.
PLO4	Design, plan, conduct and report on investigations which may involve primary or secondary data.
PLO5	Obtain, record, collate and analyse data using appropriate techniques working either individually or within a group.

Code	Description
PLO6	Comply with health and safety policies, Good Laboratory Practice (GLP), risk and Control of Substances Hazardous to Health (COSHH) assessments and recognise the importance of quality control and quality assurances.
PLO7	Use and interpret a variety of sources of information: textual, numerical, verbal and graphical within the laboratory setting.
PLO8	Understand the need when undertaking sample selection to ensure validity, accuracy, calibration, precision, reproducibility and the need to highlight uncertainty and potential sources of bias during data collection.
PLO9	Prepare, process, interpret and present data using appropriate qualitative and quantitative techniques, statistical programmes, spreadsheets and programmes for presenting data visually.
PLO10	Communicate effectively by discussion, written materials, use of images and oral presentations.
PLO11	Use information technology to prepare, process and present information.
PLO12	Demonstrate competence in core experimental skills, data analysis and interpretation of results with a critical understanding of the appropriate contexts for their use through the study of texts, original papers and reports.
PLO13	Identify targets and follow schedules to meet targets.
PLO14	Demonstrate team working skills.
PLO15	Engage with the essential facts, major concepts, principles and theories associated with Biochemistry and current developments in the Biosciences, including the philosophical and ethical issues involved.
PLO16	Analyse, synthesise and summarise information critically from a variety of sources including published research or reports
PLO17	Recognise and apply subject specific theories, paradigms, concepts or principles, for example the relationship between genes and proteins.
PLO18	Construct grammatically correct documents in an appropriate academic style and format, using and referencing relevant ideas and evidence.
PLO19	Understand the importance of academic and research integrity.
PLO20	Obtain and integrate several lines of subject specific evidence to formulate and test hypotheses.
PLO21	Apply subject knowledge and understanding to address familiar and unfamiliar problems.

Programme Structure

Programme Structure Description

Study Abroad Students will be offered the opportunity of study abroad at Level 5. Students can choose either Option A or Option B unless they undertake the Sandwich Year, in which case Option B is not available: Option A: replacement of 60 credits of Level 5 with appropriate study abroad. The programme will offer the opportunity of 60 credits of study at Level 5. Students will be enrolled on a 360 credit honours with study abroad programme. A 60 credit Level 5 study abroad module [5109BCBMOL] will normally replace the semester 2 modules on the standard programme. This study abroad should cover the same learning outcomes as the modules being replaced. The modules to be studied in the host institution must be agreed in advance. The Level 5 mean for the final award mark will be calculated based upon the 120 credits at Level 5. Option B: additional study year abroad following Level 5. The programme will offer the opportunity of an additional study year abroad following Level 5. Students will be enrolled on a 480 credit honours with study abroad programme. Of those 480 credits, 120 will be taken via a Level 5 study abroad module [5108BCBMOL], the modules to be studied in the host institution must be agreed in advance. The Level 5 mean for the final award mark will be calculated based upon the 240 credits at Level 5. Sandwich Year [5107BCBMOL] The aim is to provide students with an extended period of work experience at an approved partner that will complement their programme of study at LJMU. This will give the students the opportunity to develop professional skills relevant to their programme of study, as well as attitude and behaviours necessary for employment in a diverse and changing environment. The placement year will follow Level 5 and students will be enrolled on a 480 credit honours sandwich programme. Students beginning the programme prior to September 2022 will remain on the previous validated versions of the modules on their programme unless going on a leave of absence / have been awarded Final Module Attempts by the Board of Examiners, which may require that they move to the new programme version.

Programme Structure - 360 credit points	
Level 4 - 120 credit points	
Level 4 Core - 120 credit points	CORE
[MODULE] 4102BCBMOL Introduction to Structural and Functional Biochemistry Approved 2022.01 - 20 credit points	
[MODULE] 4104BCBMOL Physiological Biochemistry Approved 2022.01 - 20 credit points	
[MODULE] 4112BCBMOL Microbial Biotechnology 1 Approved 2022.01 - 20 credit points	
[MODULE] 4113BCBMOL Practical and Employability Skills in Biochemistry Approved 2022.01 - 20 credit points	
[MODULE] 4114BCBMOL Introduction to Cell Biology Approved 2022.02 - 20 credit points	
[MODULE] 4115BCBMOL Introduction to Molecular Biology Approved 2022.01 - 20 credit points	
Level 5 - 120 credit points	
Level 5 Core - 120 credit points	CORE
[MODULE] 5101BCBMOL Methods in Biochemistry Approved 2022.01 - 20 credit points	
[MODULE] 5102BCBMOL Metabolic Biochemistry Approved 2022.01 - 20 credit points	
[MODULE] 5104BCBMOL Structural and Functional Biochemistry Approved 2022.01 - 20 credit points	
[MODULE] 5105BCBMOL Molecular Biology and Functional Genomics Approved 2022.01 - 20 credit points	
[MODULE] 5106BCBMOL Molecular Cell Biology Approved 2022.01 - 20 credit points	
[MODULE] 5115BCBMOL Microbial Biotechnology 2 Approved 2022.01 - 20 credit points	
Optional placement - 120 credit points	OPTIONAL
Placement Year - 120 credit points	OPTIONAL
[MODULE] 5107BCBMOL Sandwich Year - Biochemistry Approved 2022.01 - 120 credit points	
OR Study Abroad - 120 credit points	OPTIONAL

[MODULE] 5108BCBMOL Study Year Abroad - Biochemistry Approved 2022.01 - 120 credit points	
Optional Study Semester - 60 credit points	OPTIONAL
[MODULE] 5109BCBMOL Study Semester Abroad - Biochemistry Approved 2022.01 - 60 credit points	
Level 6 - 100 credit points	
Level 6 Core - 100 credit points	CORE
[MODULE] 6101BCBMOL Advanced Structural and Functional Biochemistry Approved 2022.03 - 20 credit points	
[MODULE] 6102BCBMOL Biochemistry Symposia Approved 2022.01 - 20 credit points	
[MODULE] 6103BCBMOL Advanced Cell and Molecular Biology Approved 2022.02 - 20 credit points	
[MODULE] 6108BCBMOL Biochemistry/Biotechnology Research Project Approved 2022.01 - 40 credit points	
Level 6 Optional - 20 credit points	OPTIONAL
[MODULE] 6104BCBMOL Microbial Technology Approved 2022.01 - 20 credit points	
[MODULE] 6104BMBMOL Cancer Approved 2022.01 - 20 credit points	
[MODULE] 6108BMBMOL Work-Based Learning Approved 2022.01 - 20 credit points	
[MODULE] 6203NATSCI Applications of Genetics in Health and Disease Approved 2022.01 - 20 credit points	
[MODULE] 6211NATSCI Neurobiology Approved 2022.02 - 20 credit points	

Module specifications may be accessed at https://proformas.ljmu.ac.uk/Default.aspx

Teaching, Learning and Assessment

Lectures, practicals, small group tutorials, seminars, workshops, individual project work, problem-based learning scenarios, self-directed study and student led group symposia. Cognitive skills are assessed via many methods such as, but not exclusively, written examinations (short answer questions, essay style and MCQ),laboratory reports, research project report, data handling tests, oral presentations and group poster sessions. It should be noted that if it is felt that a student is in need of key skill enhancement the Programme team is quick to direct students to the many study support sessions that the University provides. The learning, teaching and assessment strategy of the Biochemistry programme is designed to encourage within the student a progressive acquisition of subject knowledge and skills by moving from level 4 where there is a greater degree of support and assistance to level 6 where there is a greater degree of independence and self-direction especially within the Research Project. The integration and cross-referencing of material between different modules should ensure that the student sees the Biochemistry field as a whole rather than discrete sub-units, allowing student responsibility of their own learning across disciplines as they enter the final level of their degree programme and subsequently on to their professional career.

Opportunities for work related learning

The programme also offers the option of a sandwich route, which involves 1 year of work experience in a specialist field. The sandwich placement occurs at the end of level 5 and the training allows students to develop their professional and technical skills. Work related learning is delivered throughout the programme and for those students who are eligible there is a level 6 Work-Based Learning module.

Entry Requirements

Type	Description
Alternative qualifications considered	In common with standard University policy, applicants should have GCSE passes in Mathematics and English with a minimum grade C, or equivalent.
Other international requirements	A wide variety of qualifications may be acceptable provided that they equate to UK requirements. They should also provide evidence of English language ability equivalent to 6.0 IELTS.
BTECs	BTEC applicants should hold or be studying and appropriate diploma and have (or expect to obtain) a pass with at least 3 merit grades at level 3 in appropriate units.
International Baccalaureate	Applicants must have (or expect to obtain) the full award including grade 5 in an appropriate science.
NVQ	Applicants with either a HNC or HND will be considered on an individual basis and may be eligible for some recognition of prior learning
A levels	Applicants should have (or expect to obtain) at least 2 'A2' levels or equivalent, including Biology and/or Chemistry with a minimum of 104 points.

Extra Entry Requirements