Template C4

Kingston University London

Programme Specification

Title of Course: *BSc (Hons) Biochemistry*

Date first produced	31/05/2012
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Version number	7
Faculty	Faculty of Health, Science, Social Care & Education
School	School of Life Sciences, Pharmacy and Chemistry
Department	Department of Biomolecular Sciences
Delivery Institution	Kingston University

This Programme Specification is designed for prospective students, current students, academic staff and employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes and content of each modules can be found in the course VLE site and in individual Module Descriptors.

SECTION 1: GENERAL INFORMATION

Award(s) and Title(s): ***Up to 10 pathways***	BSc (Hons) Biochemistry
Intermediate Awards(s) and Title(s): ***There are 4 Intermediate awards for each pathway***	Cert HE Biochemistry Ordinary degree Biochemistry DipHE Biochemistry
Course Code ***For each pathway and mode of delivery***	UPBCH1BCH01 UFBCH1BCH01
UCAS code ***For each pathway***	C700 (full-time), C701 (with placement), C708 (with foundation)

Award(s) and Title(s): ***Up to 10 pathways***	BSc (Hons) Biochemistry (with Professional Placement)
Intermediate Awards(s) and Title(s): ***There are 4 Intermediate awards for each pathway***	Cert HE Biochemistry (with Placement) Ordinary degree Biochemistry (with Placement) DipHE Biochemistry (with Placement)
Course Code ***For each pathway and mode of delivery***	N/A USBCH1BCH45
UCAS code ***For each pathway***	

Award(s) and Title(s): ***Up to 10 pathways***	BSc (Hons) Biochemistry (with Foundation Year)
Intermediate Awards(s) and Title(s): ***There are 4 Intermediate awards for each pathway***	Cert HE Biochemistry (with Foundation Year) Ordinary degree Biochemistry (with Foundation Year) DipHE Biochemistry (with Foundation Year)
Course Code ***For each pathway and mode of delivery***	
UCAS code ***For each pathway***	

RQF Level for the Final Award:	Honours
Awarding Institution:	Kingston University
Teaching Institution:	Kingston University
Location:	Penrhyn Road
Language of Delivery:	English
Modes of Delivery:	Part-time Full Time

	With Professional Placement
Available as:	
Minimum period of registration:	Part-time - 3 Full Time - 6 With Professional Placement - 4
Maximum period of registration:	Part-time - 6 Full Time - 12 With Professional Placement - 8
Entry Requirements:	Kingston University typically uses a range of entry requirements to assess an applicant's suitability for our courses. Most course requirements are based on UCAS Tariff points, usually stipulated as a range, and are sometimes coupled with minimum grades in specific relevant subjects. We may also use interview, portfolio and performance pieces to assess an applicant's suitability for the course. We recognise that every person's journey to Higher Education is different and unique and in some cases we may take into account work experience and other non-standard pathways onto University level study. Additionally, all non-UK applicants must meet our English language requirements. Please see our course pages on the Kingston University website for the most up to date entry requirements.
Programme Accredited by:	Royal Society of Biology
QAA Subject Benchmark Statements:	Biosciences (Quality Assurance Agency for Higher Education, 2023)
Approved Variants:	The project (bioscience) module (LS6014) must be passed and cannot be compensated.
Is this Higher or Degree Apprenticeship course?	

For Higher or Degree Apprenticeship proposals only	
Higher or Degree Apprenticeship standard:	n/a
Recruitment, Selection and Admission process:	n/a

End Point Assessment Organisation(s):	n/a

SECTION 2: THE COURSE

A. Aims of the Course

The main aims of BSc (Hons) Biochemistry are to:

- provide all students who take the Biochemistry course with an in-depth knowledge and understanding of the core elements of Biochemistry and those of closely related subject areas;
- enable students to identify, locate and critically appraise primary and secondary literature sources as a basis for independent study and to conduct a major research project at level 6;
- develop extensive and varied subject related practical skills and competence in the collection, analysis, interpretation and representation of scientific data and information;
- afford students with the opportunities to develop their written and oral communication skills;
- enable students to develop their independent study skills using both primary and secondary literature sources;
- prepare students for graduate employment, research, further study and lifelong learning by developing their intellectual, problem solving, communication, numeracy and ICT, practical and key (transferable) skills;
- develop student creativity and innovation relevant to the workplace;
- produce undergraduates with a knowledge and skills base that allow pursuit of both scientific and non-scientific careers in a variety of work environments.

Additionally, for students following the placement programme:

- enable students to complete a period of work experience within a research institute, pharmaceutical industry or hospital laboratory, building upon their previous academic knowledge and experience; and
- provide students with an insight into the role of a biochemist by gaining first-hand experience and thus increase their awareness of careers opportunities within various industries.

B. Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced to the QAA subject benchmarks for Biosciences (2023) and the Frameworks for HE Qualifications of UK Degree-Awarding Bodies (2014) and relate to the typical student.

The programme learning outcomes are the high-level learning outcomes that will have been achieved by all students receiving this award. They must align to the levels set out in the 'Sector Recognised Standards in England' (OFS 2022).

Programme Learning Outcomes					
	Knowledge and Understanding On completion of the course students will be able to:		**Intellectual Skills** On completion of the course students will be able to		**Subject Practical Skills** On completion of the course students will be able to
A8	Demonstrate awareness of the career opportunities within biochemistry, or related subject areas	B7	Work effectively in a team and play a full part in achieving its success	C4	Demonstrate skills in the evaluation, interpretation and reporting of laboratory data
A7	Use molecular biology techniques (including bioinformatics), and application of molecular genetics within biochemistry	B6	Develop original ideas and communicate them well to others (in written, oral and digital form)	C3	Be conversant with the detailed and strict requirements of facilities and procedures used in biochemistry
A6	Use bioanalytical techniques in biochemistry	B5	Demonstrate the ability to be an independent autonomous learner	C2	Select and perform in an efficient manner the techniques used widely in biochemistry
A5	Apply health and safety procedures in the biochemical laboratory	B4	Assemble and interpret data from a variety of sources (including academic literature) to discern and establish connections	C1	Perform subject-related practical work safely and understand and comply with ethical and safety issues
A3	Use information technology, databases and analytical tools in biochemistry	B3	Plan, conduct and report on an individual research project		
A2	Demonstrate knowledge and understanding of the molecular basis of selected human diseases	B1	Demonstrate the ability to critically evaluate and appraise information from both primary and secondary sources, and where appropriate integrate information from multiple sources		
A1	Demonstrate knowledge and understanding of the structure of the major classes of biochemical compounds and the relationship of	B2	Apply subject knowledge and understanding to the solving of problems by using innovative methods		

	these structural attributes to their function within a cell/organism				
A4	Understand the principles underpinning scientific research methodology				

In addition to the programme learning outcomes, the programme of study defined in this programme specification will allow students to develop the following range of Graduate Attributes:

1. Creative Problem Solving
2. Digital Competency
3. Enterprise
4. Questioning Mindset
5. Adaptability
6. Empathy
7. Collaboration
8. Resilience
9. Self-Awareness

C. Outline Programme Structure

This programme is offered in full-time/full-time placement/part-time mode and leads to the award of BSc (Hons) Biochemistry. Entry is normally at level 4 with A-level or equivalent qualifications (See section D). Transfer from a similar programme is possible at level 5 with passes in comparable level 4 modules – but is at the discretion of the course team. Intake is normally in September. Students have the opportunity to go abroad after their level 4 studies through bilateral agreements signed with several institutions around the world.
Each level is made up of four modules each worth 30 credit points. Typically, a student must complete 120 credits at each level. All students will be provided with the University regulations and specific additions that are sometimes required for accreditation by outside bodies (e.g. professional or statutory bodies that confer professional accreditation). Full details of each module will be provided in module descriptors and student module guides.
Level 4 of the programme is designed to provide students with grounding in the biological and chemical principles of biochemistry, which are considered essential to underpin level 5 and 6 of the course. A Scientific and Laboratory Skills module equips students with the basics underlying the practical applications of the subject along with mathematics, statistics and ICT skills. At level 5, students study four core modules that build upon the knowledge gained during level 4 to further develop their understanding of the molecular basis of biological systems and biochemical techniques. The module entitled Research Methods and Skills in addition develops students' research skills, including communication, critical evaluation and statistical analysis of data. Level 6 of the course is comprised of a range of specialist modules that allow students to study selected biochemical topics in some depth. Students can also choose between three option modules. As a core element at level 6, students will conduct an original piece of independent research in a topic of their choice related to biochemistry. The biochemistry programme also allows selected modules from the Department of Chemical & Pharmaceutical Sciences to be chosen that highlight some of the processes utilised in the biochemical and pharmaceutical industries.

BSc (Hons) Biochemistry

Level 4							
BSc (Hons) Biochemistry							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**

Foundation Chemistry	CH4005	30	4	1 and 2			
Genes, Cells and Tissues	LS4001	30	4	1 and 2			
Scientific and Laboratory Skills	LS4003	30	4	1 and 2			
The Biochemical Foundations of Life	LS4002	30	4	1 and 2			
Optional Modules							

Level 5							
BSc (Hons) Biochemistry							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Analytical Science	CH5006	30	5	1 and 2			
Microbiology	LS5021	15	5	1	None	1	2
Molecular Biology of the Cell	LS5001	30	5	1 and 2			
Proteins and Metabolism	LS5002	30	5	1 and 2			
Research Methods and Skills	LS5022	15	5	1 and 2	None	1	2
Sandwich Year Placement	LS5000	120	5	Minimum of 36 weeks throughout the year			
Optional Modules							

Level 6							
BSc (Hons) Biochemistry							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Current Concepts in Biomolecular Science	LS6002	30	6	1 and 2			
Molecular Genetics and Bioinformatics	LS6001	30	6	1 and 2			
Project (Bioscience)	LS6014	30	6	1 and 2			
Optional Modules							
Advanced Analytical Science	CH6007	30	6	1 and 2	CH5006		
Chemotherapy of Infectious & Neoplastic Disease	LS6003	30	6	1 and 2	LS5001 and LS5003		
Clinical Chemistry and Haematology (Blood Sciences)	LS6005	30	6	1 and 2	LS4001		

Level 6 requires the completion of

Level 6 requires the completion of the three compulsory modules and 1 option module.
It is a professional and statutory regulatory body requirement that the project (bioscience) module (LS6014) must be passed and cannot be compensated

BSc (Hons) Biochemistry (with Professional Placement)

BSc (Hons) Biochemistry (with Foundation Year)

D. Principles of Teaching, Learning and Assessment

This programme has been designed to take account of the KU Curriculum Design Principles. The course utilises a wide range of teaching and learning methods that will enable all students to be actively engaged throughout the course. Teaching and learning methods are carefully crafted to suit the content and the learning outcomes of each module. Most modules typically use lectures in the early parts to ensure that students have the key knowledge relating to the module. Through a variety of group and seminar work, practical and laboratory sessions, students are then given the opportunity to develop more individual interests along with personal and key skills. The content of modules is designed to recognise the expected variation in student knowledge base, along with key and transferable skill competencies. Overall emphasis is placed on developing academic skills and utilising research-informed teaching strategies that best suites practice.

A range of assessment methods will be used that enable students to demonstrate the acquisition of knowledge and skills. Methods include coursework, oral presentations, in-class tests, MCQs, examinations, laboratory reports and poster presentations. The assessment regime for each module has been designed to provide formative opportunities that allow students to practice and to receive feed forward on their performance in preparation for the summative assessment. Care has been taken to avoid assessment bunching. There are opportunities for synoptic assessment at level 6, which allows students to demonstrate achievement of a range of learning outcomes from across a number of modules. Students are supported in this by their allocated personal tutor, who will help them to draw together the themes of the curriculum. All level 6 students are required to complete a ‘capstone’ project, which allows them to demonstrate and apply the knowledge and skills that they have acquired throughout the course. The topic of the project will be negotiated with the Project Tutor in dialogue with the project supervisor. The capstone project also allows students to develop and hone their research skills and provide them with the foundations for further study if they wish to pursue it.

The development of academic/graduate skills is threaded throughout the course and assessed both formatively and summatively. Diagnostic testing in the early weeks of the course and at intervals throughout the course will be utilised to not only test progress in the development of these skills but also to identify where students may need additional support which may be provided via the Academic Skills Centre or other tailored support.

E. Support for Students and their Learning

Students are supported by:

- A Module Leader for each module
- A Course Leader to help students understand the programme structure
- Personal Tutors to provide academic advice and guidance, to build rapport between staff and students and contribute to personalising the students' experience.
- A placement tutor to give general advice on placements
- Technical support to advise students on IT and the use of software
- A designated programme administrator
- An induction week at the beginning of each new academic session
- Staff Student Consultative Committee
- Canvas – a versatile on-line interactive intranet and learning environment
- A substantial Study Skills Centre that provides academic skills support
- Student support facilities that include student support officers provide advice on issues such as finance, regulations, legal matters, accommodation, international student support etc.
- Disabled student support
- The Students' Union
- Careers and Employability Service

F. Ensuring and Enhancing the Quality of the Course

The University has several methods for evaluating and improving the quality and standards of its provision. These include:

- External examiners
- Boards of study with student representation
- Annual review and development
- Periodic review undertaken at the subject level
- Student evaluation
- Moderation policies

G. Employability and work-based learning

Students' generic employability skills are developed throughout the course, through activities that are embedded within the syllabus, through interaction with their personal tutor and from services offered by the University's Careers and Employability Service. From level 4, students are encouraged to reflect on and identify what they have learned, whether academically or in terms of transferable skills, and how these may be relevant to employment. Students are also encouraged to explore the job market and possible career paths, and to develop attributes that employers look for in graduates above and beyond essential academic skills. Such attributes can include initiative, the ability to work in teams, time management and prioritisation skills, the desire to learn and the motivation to improve performance, along with appropriate communication and presentation skills in all their forms. In this context, students are encouraged to take advantage of opportunities within and outside of the university to develop such skills through volunteering, work placements and study abroad programmes. These skills are developed and enhanced during level 5 and 6; in particular, the importance of creative thinking and problem-solving, networking, negotiating, inquisitiveness and giving and receiving feedback. Students are also encouraged to develop clearer ideas about career options and are offered assistance and guidance in the preparation of CVs, job applications and interviews. Level 6 also develops an understanding of leadership skills as well as an appreciation of commercial and business awareness, among other essential employment skills. A placement programme option enables students to complete a period of work

experience within a research institute, pharmaceutical industry or hospital laboratory between level 5 and 6.

Overall, this course has been designed to fulfil the core curriculum requirements of the Biochemical Society with the programme learning outcomes benchmarked to the QAA for Higher Education Biosciences subject area statements (2023). This ensures the content of the curriculum and the knowledge and skills that it develops are appropriate to the modern practice setting. Students are also encouraged to seek relevant summer work that will enable them to practice their subject specific skills and to develop their employability skills.

Typically, biochemists are employed in hospital, university and research institute laboratories; food, cosmetic, biochemical and pharmaceutical industrial companies; government and non-governmental advisory roles; publishing and scientific communication; sales and marketing; and laws firms that specialise in scientific cases. Since biochemistry underpins many of the biosciences, it also allows biochemists to specialise in a range of different subjects at a later date. Many Biochemistry students chose to take further qualifications such as the PGCE to enter teaching or undertake study for higher degrees including MSc and PhDs. Some also chose to apply to medical, dental and vet school. In addition, some biochemistry graduates pursue a career outside of science because of their highly desirable transferable skills they have developed including analytical, numeracy, planning and presentational skills.

Graduates of this course have taken up posts in a variety of employment settings including the NHS, GlaxoSmithKline, Syngenta, the Laboratory of the Government Chemist and Lonza. From a typical cohort at least 20% go on to postgraduate study.

Work-based learning, including sandwich courses and higher or degree apprenticeships

Work placements are actively encouraged – although it is the responsibility of individual students to source and secure such placements with the assistance of a placement tutor. This allows students to reflect upon their own personal experience of working in an applied setting, to focus on aspects of this experience that they can clearly relate to theoretical concepts and to evaluate the relationship between theory and practice. A placement programme option enables students to complete a period of work experience within a research institute, pharmaceutical industry or hospital laboratory between level 5 and 6.

H. Other sources of information that you may wish to consult

See subject benchmark for Biosciences:
https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-biosciences.pdf?sfvrsn=21f2c881_4

Royal Society of Biology accreditation information
https://www.rsb.org.uk/education/accreditation

Career and educational information from the Biochemical Society can be found at:
http://www.biochemistry.org

Unistats website:
http://unistats.direct.gov.uk

Kingston University website

https://www.kingston.ac.uk/undergraduate-course/biochemistry-bsc/

I. Development of Course Learning Outcomes in Modules

This table maps where course learning outcomes are **summatively** assessed across the modules for this course. It provides an aid to academic staff in understanding how individual modules contribute to the course aims, a means to help students monitor their own learning, personal and professional development as the course progresses and a checklist for quality assurance purposes.

Module Code		Level 4				Level 5						Level 6					
		LS4003	CH4005	LS4002	LS4001	LS5021	LS5022	LS5002	LS5000	CH5006	LS5001	LS6005	LS6003	LS6014	CH6007	LS6002	LS6001
Knowledge & Understanding	A8	S					S	S		S						S	S
	A7										S			S		S	S
	A6	S		S		S		S		S		S				S	S
	A5	S	S	S		S		S		S	S	S	S	S		S	S
	A3	S					S	S		S		S	S	S		S	S
	A2	S	S	S		S		S			S	S	S			S	S
	A1	S		S				S				S	S			S	S
	A4	S	S	S			S	S		S	S	S	S	S	S	S	S
Intellectual Skills	B7	S					S									S	
	B6	S	S	S			S	S		S	S	S	S	S	S	S	S
	B5	S	S	S			S	S		S	S		S	S	S	S	S
	B4	S		S			S	S		S	S	S	S	S	S	S	S
	B3						S			S		S		S		S	S
	B1	S		S		S	S	S		S	S	S	S	S	S	S	S
	B2		S				S			S	S	S		S	S	S	S
Practical Skills	C4	S	S	S		S		S		S	S	S	S	S	S	S	S

	C3	S		S		S	S	S		S		S		S		S	S
	C2	S		S		S		S		S		S		S		S	S
	C1	S	S	S		S		S		S		S	S	S	S	S	S

Students will be provided with formative assessment opportunities throughout the course to practise and develop their proficiency in the range of assessment methods utilised.