

School of Life and Medical Sciences

Title of Programme: [Biochemistry](#)

Programme Code: HHBIO

Programme Specification

This programme specification is relevant to students entering:
24 September 2018

Associate Dean of School (Academic Quality Assurance):
Stefanie Schmeer

Signature



A programme specification is a collection of key information about a programme of study (or course). It identifies the aims and learning outcomes of the programme, lists the modules that make up each stage (or year) of the programme, and the teaching, learning and assessment methods used by teaching staff. It also describes the structure of the programme, its progression requirements and any programme-specific regulations. This information is therefore useful to potential students to help them choose the right programme of study, to current students on the programme, and to staff teaching and administering the programme.

Summary of amendments to the programme:

Section	Amendment

If you have any queries regarding the changes please email AQO@herts.ac.uk

Programme Specification Biochemistry

This programme specification (PS) is designed for prospective students, enrolled students, academic staff and potential 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 he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content for each module can be found in Definitive Module Documents (DMDs) and Module Guides.

Section 1

Awarding Institution/Body	University of Hertfordshire
Teaching Institution	University of Hertfordshire
University/partner campuses	College Lane/de Havilland
Programme accredited by	Royal Society of Biology
Final Qualification	BSc (Hons)
All Final Award titles	Biochemistry
(Qualification and Subject)	Biochemistry (Sandwich) Biochemistry with a Year Abroad
FHEQ level of award	6
UCAS code(s)	C1CR
Language of Delivery	English

A. Programme Rationale

The degree is aimed at students who wish to develop an understanding of the structure and function of living things at the molecular level. The course is underpinned by a strong chemistry foundation that enables the students to apply chemical principles to the structure and function of molecules in biological systems. This is combined with a thorough grounding in metabolism and molecular biology and also incorporates a strong practical component. The extensive research experience gained by staff over many years in academia and industry feeds into the content and delivery of the programme. This programme has been accredited by the Royal Society of Biology. Advanced Degree Accreditation by the Society recognises academic excellence in the biosciences, and highlights degrees that educate the research and development leaders and innovators of the future. The Advanced Accreditation criteria require evidence that graduates from the programme meet defined sets of learning outcomes, including gaining a substantial period of research experience. All students wishing to complete a Level 6 laboratory-based research project will have the opportunity to do so, which is a substantial skills enhancement for students' going on to study for research degrees and move into research roles. Successful students will be well-equipped to investigate and interpret biological problems encountered in fields such as the pharmaceutical, food and drink, agricultural, biotechnology and biomedical industries. In addition successful students will be equipped for further postgraduate study or research in a range of disciplines including biochemistry, molecular biology and medicine.

B. Educational Aims of the Programme

The programme has been devised in accordance with the University's graduate attributes of programmes of study as set out in [UPR TL03](#).

Additionally this programme aims to:

- enable students to develop knowledge, understanding and investigative skills relevant to the functioning of cells, tissues and organisms at chemical, molecular and cellular levels;
 - support the development of the transferable skills and attributes necessary for the students' future professional development through academic study and continual lifelong learning as scientists.
-

C. 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 benchmark statements for Bioscience and the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (2015) and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education (2016) have been used as a guiding framework for curriculum design.

Knowledge and Understanding	Teaching and learning methods	Assessment strategy
Successful students will be able to:	Acquisition of A1 – A8 is through a combination of lectures, laboratory classes, workshops throughout the course as well as the research project and, for sandwich students, the industrial training experience.	Testing of knowledge and understanding are assessed by a combination of laboratory reports, seminars, group work, problem-solving exercises, interpretative exercises written assignments and unseen examinations. (A1 – A8).
A1 acquire the specific knowledge appropriate to Biochemistry;	Acquisition of A2 is through lectures, laboratory classes, computer simulations, workshops and coursework exercises in Molecular Structure and Reactivity, Core Biochemistry, and Practical and Transferable Skills at Level 4 and Chemistry and Analytical Chemistry and Biochemistry at Level 5 and Advanced Biochemistry at Level 6.	
A2 express biochemical reactions in chemical terms and understand the 'chemical logic' of metabolism;	A3 is taught in Cell and Microbiology and Core Biochemistry at Level 4 and developed in Cell and Molecular Biology and Biochemistry at Level 5.	
A3 have a broad knowledge of cell structure and metabolism - its commonality and diversity across species and its investigation;	Acquisition of A4 is through lectures, workshops and practicals in Molecular Structure and Reactivity and Introductory to Biochemistry at Level 4 and Chemistry and Analytical Science and Biochemistry at Level 5;	
A4 understand how the structure of both small chemical entities and biological macromolecules determine their biological/biochemical properties;	Acquisition of A5 is initiated at Level 4 in Cell and Microbiology, and Molecular Biology and Genetics, through lecture, laboratory and workshop classes and is further developed in Level 5 Genes and Genomes and Biochemistry and Level 6 in Cellular Differentiation and Development and Molecular Medicine. The practical programme is particularly relevant to this outcome and students are exposed to a range of laboratory and bioinformatics techniques.	
A5 have a knowledge and understanding of gene structure, replication, expression, inheritance, evolution and relevant experimental methods of analysis;	Acquisition of A6 is acquired through lectures, workshops and practicals in Core Biochemistry at Level 4, Biochemistry at Level 5 and Advanced Biochemistry and Applied and Integrated Molecular Science at Level 6 including interpretative assignments.	
A6 have a knowledge of enzymology at the structural, functional, kinetic and regulatory levels and appreciate methods for its investigation;	Acquisition of A7 is initiated at Level 4 Molecular Structure and Reactivity and Practical and Transferable Skills and developed in Bioscience Research Methods and Chemistry and Analytical Science at Level 5. A8 will be initiated in Biochemistry at Level 5, is integral to all final year modules but particularly	
A7 have a knowledge of chemical methods of synthesis and analysis;		
A8 appreciate how theoretical concepts of biochemistry and molecular biology can be applied to solve industrial and medical problems.		

	<p>addressed in Applied and Integrated Molecular Science.</p> <p>Acquisition of A9 is achieved in the optional industrial placement year or Bioscience Work Experience module.</p> <p>Throughout, the learner is encouraged to undertake independent study both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.</p>	
<u>Intellectual skills</u>	<u>Teaching and learning methods</u>	<u>Assessment strategy</u>
<p>Successful students will be able to:</p> <p>B1 analyse and solve problems related to Biochemistry.</p> <p>B2 understand the ethical implications of their work.</p> <p>B3 be able to execute and report a research project in order to develop skills necessary for independent research (BSc Hons).</p> <p>B4 apply theoretical concepts to the study of biochemistry and evaluate the relationships between theory and practice.</p> <p>B5 display an awareness of the existence and nature of value judgements.</p> <p>B6 demonstrate a critical approach in enquiry and a readiness to test hypotheses, interpret scientific data and, at Level 6, evaluate published literature.</p>	<p>Problem analysis and solving skills (B1) will be developed in all Level 4 and 5 modules but focused on in Bioscience Research Methods at Level 5.</p> <p>Analysis of biochemical problems will be focused on in final year modules with integration across the topic areas in Applied and Integrated Molecular Science.</p> <p>Students are given a firm grounding in ethical practices in science (B2) throughout Level 4 and issues pertinent to Biochemistry are developed in the Level 5 module, Bioscience Research Methods.</p> <p>Aspects relevant to independent research (B3) are introduced in the Level 5 module, Bioscience Research Methods and come into fruition in the Project module at Level 6.</p> <p>The relationship of theory to practice (B4) is achieved throughout the whole programme, focused on in case studies in Applied and Integrated Molecular Science, and is the fundamental basis of the placement training (where appropriate).</p> <p>Workshop exercises in all modules make a significant contribution to B5 and this is enhanced by taught material in Bioscience Research Methods.</p> <p>To acquire B6 the student is introduced to the analysis of published literature as part of Bioscience Research Methods at Level 5 and other written assignments, evaluation is developed at Level 6 in lectures, assignments including problem-based learning, and their project. Maths skills are introduced as part of Practical and Transferable Skills at Level 4, developed in practical reports throughout Level 5 and in the Bioscience Research Project. Data handling and statistical analysis is introduced in Practical and Transferable Skills at Level 4, developed in assignments and Bioscience Research Methods at Level 5 and reinforced in the project at Level 6.</p>	<p>B1, B2 and B4 are assessed in laboratory reports and written assignments. In addition B1 is assessed by unseen examinations. The development of the project proposal in Bioscience Research Methods demonstrates B1, B2 and B4.</p> <p>The Biosciences Research Project (B3) is tested by the assessment of performance whilst undertaking the research, the assessment of the report and a poster. B5 and B6 are assessed in laboratory reports, unseen examinations, interpretative exercises, seminars, vivas and the project. Regular on-line assessments are used for maths skills and data analysis.</p>

Practical skills	Teaching and learning methods	Assessment strategy
<p>Successful students will be able to:</p> <p>C1 acquire appropriate laboratory skills, including safe working practices.</p> <p>C2 acquire appropriate computer skills.</p>	<p>The majority of laboratory based practicals will be taught in Practical and Transferable Skills at Level 4. All modules in Level 5 contain a substantial practical component. Practical skills and safe working practices (C1) are built up during Level 4 and applied to experiments in Level 5, consolidated on the work placement and culminate in an individual project.</p> <p>Computer skills (C2) are developed throughout the programme with subject specific software being introduced and used where appropriate.</p> <p>Throughout, the learner is expected to consolidate their development of practical computer skills by use of computers available in the Learning Resource Centre.</p>	<p>Assessment of practical skills and attributes is by both formative and summative assessment in laboratory classes; laboratory reports; problem-solving exercises; unseen examinations; interpretative exercises; preparing abstracts; seminars; and the Bioscience Research Project.</p>
Transferable skills	Teaching and learning methods	Assessment strategy
<p>Successful students will be able to:</p> <p>D1 communicate effectively using a variety of formats and to a range of audiences.</p> <p>D2 use effectively a range of information sources.</p> <p>D3 organise and present intellectual argument commensurate with the Level of award.</p> <p>D4 work effectively independently (e.g. on assignments or during the project).</p> <p>D5 work effectively as part of a team (e.g. in group work, during group discussions and workshops).</p> <p>D6 be numerate.</p> <p>D7 develop the skills required for continued self-managed professional development, reflective practice and life-long learning.</p> <p>D8 to appreciate the importance of graduate attributes through reflective practice.</p> <p>D9 develop skills relevant to a work-place environment.</p> <p>D10 develop the skills necessary to gain a knowledge and understanding of Bioscience topics in a different cultural environment.</p>	<p>Although transferable skills are embedded in the constituent modules of the programme, they are brought together in Level 4 in Practical and Transferable Skills and at Level 5 in Bioscience Research Methods Personal tutors assist their students to produce a portfolio of evidence substantiating their achievements in this area.</p> <p>Acquisition of D1 is through exercises throughout Level 4; laboratory reports and assignments; oral presentations in personal tutor groups, where presentations can be delivered in a non-threatening atmosphere and tutors give feedback; seminars, vivas and poster at Level 6.</p> <p>Acquisition of D2 is through induction classes at all three Levels and in lectures and workshops in Level 4, in particular in Practical and Transferable Skills and Level 5, Bioscience Research Methods; scientific writing is throughout the course and the Bioscience Research Project module in which information seeking will be facilitated by the project tutor.</p> <p>The teaching of D3 is initiated in Practical and Transferable Skills with exercises on report writing; during year 1, personal tutors give feedback on written assignments from a number of modules to facilitate the development of skills; Bioscience Research Methods at Level 5, feedback on assignments at all levels, seminars at Level 6 and the project introduction make a significant contribution to the development of this skill. Level 5 Bioscience Research Methods tutor groups analyse the arguments contained in a research paper.</p> <p>The acquisition of D4 and D5 is throughout all the practical components of the programme where students are required to work alone or as part of a team and in</p>	<p>Testing of D1, D2 and D3 is through a combination of essays, abstracts, laboratory reports, posters, seminars, group reports, the Bioscience Research Project report and written examinations throughout the course. Performance in these skills is monitored by personal tutors and assessed as a portfolio in Practical and Transferable Skills and Bioscience Research Methods.</p> <p>D4 and D5 are assessed formatively by feedback in the laboratory, workshops and personal tutor groups and summatively in individual and group reports, poster presentations and the project. Teamwork is assessed in an interdisciplinary assignment at Level 5 as part of the portfolio in Bioscience Research Methods. Testing of these skills is a major component of the assessment of the sandwich year.</p> <p>D6 (numeracy) is assessed in numerous assignments throughout the programme and monitored by the personal tutor in a portfolio in Practical and Transferable Skills and in Bioscience Research Methods.</p>

some modules, to carry out group assignments. In addition working as a member of a team is introduced in Human Physiology with Pharmacology at Level 4, explored through an interdisciplinary assignment in Level 5 in Bioscience Research Methods and further enhanced during an exercise in final year induction week.

The acquisition of D6 (numeracy) is initiated in lectures, workshops and class exercises in Practical and Transferable Skills (Level 4) and is developed and reinforced throughout the programme in laboratory classes, workshops, personal tutor meetings and the Bioscience Research Project. Students have access to the 'Maths Drop-in Centre' and self-learning 'MyMaths lab' computer-based learning package.

Statistical knowledge is developed in Bioscience Research Methods and applied in data analysis in Level 5 and 6 modules including the Bioscience Research Project.

The development of self-management skills (D7) is facilitated, and monitored, by personal tutors involving discussion of skills relevant to successful performance on the degree and future employability. The placement year (if taken) makes significant contributions to the attainment of this skill.

The importance of graduate attributes (D8) is discussed in Practical and Transferable Skills in Level 4 and focused upon in Level 5 induction programme and Bioscience Research Methods where students prepare their CV and reflect on their career development. Finally the importance of graduate attributes is a key part of the placement year/Bioscience Work Experience (if taken) and the Applied and Integrated Molecular Science.

Throughout, the learner is encouraged to develop transferable skills and graduate attributes by maintaining a record of evidence and completing a personal development plan.

D7 is assessed in Practical and Transferable Skills and Bioscience Research Methods The placement report will assess this skill, as does the Bioscience Research Project.

D8 is assessed in Practical and Transferable Skills and Bioscience Research Methods and as part of the placement year portfolio and/or Bioscience Work Experience (if taken).

D9 is assessed as part of the portfolio in Bioscience Work Experience and in the placement report for those who undertake a placement year.

D10 is assessed by successful completion of the Year Abroad.

D. Programme Structures, Features, Levels, Modules, and Credits

The programme is offered in full-time (3 years), sandwich (4 years), with a year abroad (4 years) and part-time (6 years) modes and leads to the award of a BSc (Hons) Biochemistry, BSc (Hons) Biochemistry (Sandwich) or BSc (Hons) Biochemistry with a Year Abroad.

Entry is normally at Level 4 with suitable A Level or equivalent qualifications but is possible at Level 5 or Level 6 with suitable qualifications (eg successful completion of Level 4/5 of comparable degrees elsewhere). Intake is normally at the beginning of Semester A in September.

The course structure and progression information below is provided for the final awards (Table 1).

The Programme Learning Outcomes detailed in section C are developed and assessed through the constituent modules. Table 2 identifies where each learning outcome is assessed.

Professional and Statutory Regulatory Bodies

The awards of BSc (Hons) Biochemistry and BSc (Hons) Biochemistry with a Year Abroad are accredited by the Royal Society of Biology. The award of BSc (Hons) Biochemistry (Sandwich) carries Advanced Accreditation by the Royal Society of Biology.

Work-Based Learning, including Sandwich Programmes

BSc (Hons) Biochemistry (Sandwich)

A designated sandwich programme leads to a University award in the sandwich mode and the word "Sandwich" appears on the award certificate. In order for the programme of study to lead to an award in the sandwich mode, the student must undertake a period of approved work experience (industrial/hospital-based placement) of not less than 36 weeks excluding holidays, normally between the end of Year 2 and the beginning of Year 4. This is an academic requirement regarding the minimum number of weeks necessary in order to gain a sandwich award. Students may be expected to work further additional weeks in order to fulfil their contractual obligations to the employer. Students must start their placement before 1st October. The placement will normally be completed within the United Kingdom but there is also the opportunity for a placement abroad subject to University approval. Students on a sandwich placement will be registered on the module Sandwich Year: Bioscience (6LMS0023) for the placement year.

BSc (Hons) Biochemistry with a Year Abroad

There is also an option to study abroad at approved partner institutions. A year abroad is deemed to be not less than two semesters in the host institution. Progress of the student's training is monitored by visits from the University's academic staff. Students will be required to document this period of work in accordance with the guidelines produced by the Department of Biological and Environmental Sciences. Students who study abroad on Year Abroad will be registered on the module Year Abroad: Bioscience (6LMS0022).

Students who have not achieved the minimum progression requirements at the end of Level 5 may be prevented from undertaking a sandwich placement. Additionally, students on placement, but who have Level 4 or 5 modules to repeat will not normally be allowed to re-enrol on these modules until they return from placement. This is to avoid a conflict between UH attendance requirements and the student's commitment to their employer. There is also a minimum achievement at Level 5 required for the Year Abroad which is set by the partner institutions.

Students who do not take the sandwich or year abroad option, progressing directly to Level 6, are automatically transferred to the full-time or relevant part-time mode.

Bioscience Work Experience (5LMS0003)

We encourage students to participate in work experience and all students are encouraged to enrol on the optional 5LMS0003 Bioscience Work Experience module. This is additional to the taught modules on the programme. Students undertaking the module are required to complete a minimum of 50 hours within the workplace, either paid or voluntary, and to submit a portfolio to demonstrate their employability skills. The portfolio will include evidence of any employment experiences the student has, evidence of any voluntary work experience, a reflection on the employability skills gained during work experience and a careers action plan, including a curriculum vita, to further their employability skills following graduation.

Student negotiated work experience is available, by agreement with programme staff at Level 5. It is also possible for a student to negotiate with the Placement Tutor a summer placement between Level 5 and Level 6.

Erasmus Exchange programme

Incoming Erasmus students are permitted to study modules on the course at Level 5 and Level 6.

Programme Structure

The programme structure and progression information below (Table 1a and 1b) is provided for the Honours award. Any interim awards are identified in Table 1b. The Programme Learning Outcomes detailed above are developed and assessed through the constituent modules. Table 2 identifies where each learning outcome is assessed.

Mode of study Full Time or Part Time.

For the part-time mode it is expected that the student will study 60cp each academic year as agreed with the Programme Leader. Timetabled teaching sessions can be on any day of the week but where there are multiple sessions the student will be assigned slots which best fit in with the rest of their timetable. Students on the part-time mode may also take a sandwich placement year or year abroad option but any of these need to be completed in 1 year (so that the programme is completed in a maximum of 7 years in total) as described below in the programme-specific regulations.

Entry point Semester A

Table 1a Outline Programme Structure

Level 4

Module Title	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Cell and Microbiology	4LMS0155	15	English	50	50	0	A
Molecular Structure and Reactivity	4LMS0040	15	English	50	50	0	A
Human Physiology with Pharmacology	4LMS0002	30	English	0	100	0	AB
Practical and Transferable Skills	4LMS0006	30	English	0	70	30	AB
Core Biochemistry	4LMS0154	15	English	50	50	0	B
Molecular Biology and Genetics	4LMS0007	15	English	50	50	0	B

Level 5

	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Module Title							
Chemistry and Analytical Science	5LMS0104	30	English	50	50	0	AB
Genes and Genomes	5LMS0091	15	English	50	50	0	A
Cell and Molecular Biology	5LMS0092	15	English	50	50	0	B
Principles of Immunology	5LMS0009	15	English	50	50	0	A
Biochemistry	5LMS0102	30	English	50	50	0	AB
Bioscience Research Methods	5LMS0001	15	English	0	100	0	AB

	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Optional Modules							
Module Title							
Bioscience Work Experience*	5LMS0003	15	English	0	100	0	ABC

* This module will not be included in the degree algorithm for calculation of the final award.

Placement year

Optional Modules	Module Code	Credit Points	% examination	% coursework
Module Titles				
Sandwich Year: Bioscience	6LMS0023	0	0	100
Year Abroad: Bioscience	6LMS0022	0	0	100

Level 6

	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Module Title							
Advanced Biochemistry	6LMS0153	30	English	50	50	0	AB
Cellular Differentiation and Development	6LMS0033	30	English	50	50	0	A
Molecular Medicine	6LMS0032	15	English	50	50	0	A
Applied and Integrated Molecular Science	6LMS0053	15	English	0	100	0	B
Bioscience Research Project	6LMS0008	30	English	0	100	0	AB

Progression to Level 5 requires a minimum of 105 credits and a pass in the module Practical and Transferable skills in the Biosciences.

Progression to Level 6 requires a minimum of 105 credits at Level 5. The module 5LMS0003 Bioscience Work Experience may not be included in the credits required for progression.

The award of an Honours degree requires 360 credit points passed with a minimum of at least 120 at Level 6 including the final year project.

Honours classification

The University has approved structure and assessment regulations common to all programmes. Full details are provided in [UPR AS14](#), Section D.

Table 1b Final and interim awards available

The programme provides the following final and interim awards:

Final Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
BSc (Hons)	Biochemistry	360 credit points including 240 at level 6/5 of which 120 must be at level 6	6	All programme learning outcomes except D9 and D10 for all graduates. D9 also achieved for those who successfully complete 5LMS0003 Bioscience Work Experience (see Table 2)
BSc (Hons)	Biochemistry (Sandwich)	360 credit points including 240 at level 6/5 of which 120 must be at level 6	6	All programme learning outcomes except D10 (see Table 2)
BSc (Hons)	Biochemistry with a Year Abroad	360 credit points including 240 at level 6/5 of which 120 must be at level 6	6	All programme learning outcomes except D9 for all graduates. D9 also achieved for those who successfully complete 5LMS0003 Bioscience Work Experience (see Table 2)
Interim Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
University Certificate		45 credit points at level 4	4	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm
Certificate of Higher Education		120 credit points at level 4	4, 5	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm
Diploma of Higher Education		240 credit points including at least 120 at level 5	5, 6	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm
BSc	Biochemistry	300 credit points including 180 at level 6/5 of which 60 must be at level 6	6	A1, A2, A3, A4, A5, A6, A7, A8, B1, B2, B4, B5, B6, C1, C2, D1, D2, D3, D4, D5, D6, D7

Programme-specific assessment regulations

The programme complies with the University's academic regulations (in particular, [UPR AS11](#), [UPR AS12](#) and [UPR AS14](#)) with the exception of those listed below, which have been approved by the University:

Course Code	Course Instance	Award Title	Modules (child instance codes and Title)	Must be included in Award degree algorithm
HHBIOBIC	BIC3F/4S	BSc (Hons) Biochemistry	6LMS0008 Bioscience Research Project	Yes
HHBIOBIC	BIC4S	BSc (Hons) Biochemistry (Sandwich)	6LMS0008 Bioscience Research Project	Yes
HHBIOBIC	BIC4S	BSc (Hons) Biochemistry with a Year Abroad	6LMS0008 Bioscience Research Project	Yes

Further programme-specific regulations (requiring School-level approval) are given below:

- The grade achieved in the optional 5LMS0003 Bioscience Work Experience module will not contribute to the classification of the final award.
- Progression to Level 5 requires a minimum of 105 credits and a pass in the module Practical and Transferable Skills.
- Progression to Level 6 requires a minimum of 105 credits at Level 5. The module 5LMS0003 Bioscience Work Experience may not be included in the credits required for progression.
- A pass grade in the final year project is required for a final award.
- A pass grade for the Sandwich Placement Year is mandatory for the receipt of BSc (Hons) Biochemistry (Sandwich) award.
- A pass grade for the Year Abroad is mandatory for the award of BSc (Hons) Biochemistry with a Year Abroad.
- All Level 6 modules of the programme have an attendance requirement of at least 75% of the classes specified in the module. Failure to attend the required proportion of classes and failure of the module assessment at the first attempt will normally result in the award of an FREN (Fail, re-enrol) grade, by the Module Board of Examiners.
- The maximum period within which a student may gain an award on the programme is normally 5 years from their date of registration as a full-time student or 7 years from their date of registration as a part-time student.
- Students on the part-time mode may take a placement or year abroad but either of these needs to be completed in 1 year (7 years in total).

E. Management of Programme & Support for student learning.

Management

The programme is managed and administered through:

- Dean of School
- Associate Deans of School (AQA and L&T) who have delegated responsibility for programmes in the Department of Biological and Environmental Sciences
- Head of Department
- Academic Lead: Student Experience

- A Programme Leader and Deputy Year Leaders who are responsible for the day to day management, each of these tutors is responsible for a specific year of the programme but can also advise students on the programme as a whole.
- Admissions Tutors, with specific responsibility for open days and selection
- A Placements Tutor to assist with the procurement of placements
- A designated Administrator to deal with day to day administration associated with the programme
- Module Co-ordinators who are responsible for individual modules
- A programme committee, the membership of which includes students, academic and professional staff, IH representation.

The Programme Leader has overall day-to-day responsibility for the programme including induction, administration, chairing the Programme Committee and for the production of the Annual Monitoring and Evaluation Report (AMER).

The Programme Committee will:

- determine policy in relation to the programme in line with University UPRs;
- ensure consistency of practice and treatment of students across the programme;
- ensure the administrative operation and assessment procedures of the programme are undertaken in line with the University and programme regulations;
- develop the programme and in particular stimulate curriculum development;
- monitor admissions in relation to student targets set for the programme;
- monitor, evaluate and review the operation of the programme;
- consider and recommend changes to courses and submit these changes to the School Academic Quality Committee;
- submit for ratification recommendations for external examiners to the School Academic Quality Committee;
- review the AMER action plan;
- respond to concerns raised by students or academic staff during delivery of the programme.

The Programme Committee consists of:

- The Programme Leader (Chair)
- Deputy Programme Leaders
- Programme Administrator (Clerk)
- Academic Lead: Student Experience, Biological and Environmental Sciences
- Head of Department, Biological and Environmental Sciences (Ex-officio)
- Associate Dean Academic Quality Assurance (Ex-officio)
- Appropriate Subject Leads
- Module Co-ordinators
- Admissions Tutor
- Placements tutor
- IH representative
- Representative of the technical staff

Student representatives from each year of the programme attend meetings of the Programme Committee. The reps are supported the School Community Officer.

Support

Students are supported by:

- A Programme Leader to help students understand the course/programme structure and provide advice and support.

- Deputy Programme Leaders including: Year Tutors who monitor attendance and performance of students as well as providing support; Admission Tutor; and a Placement Tutor who oversees the management of placements.
- Personal Tutors to provide academic and pastoral support.
- Individual placement tutors, members of academic staff who support and visit students on placement
- Employment supervisors for students who undertake a year's placement or work experience module
- Academic supervisors in partner institutions for students who take a year abroad
- Student representatives, who are supported by UHSU and the School Student Rep Organiser (SSRO), are members of the programme committee.
- An induction week at the beginning of each new academic session
- Overseas Orientation
- English language support for overseas students
- Support for studies delivered by UHSU, by the Counselling Service and online through the IH I-Spy series.
- StudyNet, a versatile on-line inter-active intranet and learning environment
- Access to extensive digital and print collections of information resources
- Telephone and online support for all learning resources
- Attractive modern study environments in 2 Learning Resources Centres which have 24hr access
- A School Information Manager within Information Hertfordshire who supports students in their use of learning resources
- A substantial Student Centre that provides advice on issues such as finance, University regulations, legal matters, accommodation, international student support, etc
- Office of Dean of Students, incorporating Chaplaincy, Counselling and nursery
- Medical Centre
- A Mathematics Drop-in Centre
- University Disability Advisors
- An Equal Opportunities Officer
- The Students' Union
- Guided student-centred learning on StudyNet module sites
- A Careers, Enterprise and Employment Service for all current students and graduates

F. Other sources of information

In addition to this Programme Specification, the University publishes guidance to registered students on the programme and its constituent modules:

- A Programme (or Student) Handbook;
- A Definitive Module Document (DMD) for each constituent module;
- A Module Guide for each constituent module;
- A Student Placement Handbook;
- University of Hertfordshire Course website:

<http://www.herts.ac.uk/courses/>

Additional sources of information include:

- SEEC Credit Level Descriptors for Further and Higher Education (2016): <http://www.seec.org.uk/wp-content/uploads/2016/07/SEEC-descriptors-2016.pdf>
- Information on Programme and Module External Examiners <http://www.studynet1.herts.ac.uk/ptl/common/studentcentre.nsf/Teaching+Documents/184A221E5EECA6B780257A5C00250BA9?OpenDocument>
- Information on the School Confidentiality policy <http://sitem.herts.ac.uk/secreg/documents/General/2016-02-01-LMS-Confidentiality%20Policy.pdf>
- Information on the School Rules of Procedure and Proceedings with respect to a Student's Complaint regarding the quality of the Learning Experience on Practice and Work Placements

<http://sitem.herts.ac.uk/segreg/documents/General/2016-02-01-LMS-Practice%20Complaints%20Policy.pdf>

- Royal Society of Biology: <https://www.rsb.org.uk/education/accreditation>

The [Herts Handbook](#) is an introduction to the academic, social, cultural and sporting services and opportunities available at the University of Hertfordshire, and includes the Student Charter and Student Code of Conduct.

As a condition of registration, all students of the University of Hertfordshire are required to comply with the University's rules, regulations and procedures. These are published in a series of documents called 'University Policies and Regulations' (UPRs). The University requires that all students consult these documents which are available on-line, on the UPR web site, at: <http://www.herts.ac.uk/segreg/upr/>. In particular, [UPR SA07](#) 'Regulations and Advice for Students' Particular Attention - Index' provides information on the UPRs that contain the academic regulations of particular relevance for undergraduate and taught postgraduate students.

The UK Quality Assurance Agency for Higher Education (QAA) has confirmed the quality and standards of provision at the University of Hertfordshire. A key part of QAA's role is to review and report on how universities maintain their academic standards and quality, to inform students and the wider public. The team of QAA reviewers visited the University of Hertfordshire in 2015/16 and judged that its academic standards, the quality and enhancement of its students' learning experience, and the quality of information about this learning experience all meet UK expectations. In other words, the University meets national requirements for standards and quality. The QAA's report can be accessed at: <http://www.qaa.ac.uk/reviews-and-reports/provider?UKPRN=10007147#.V-KHajXy0nE>

Other information relevant to the programme

Students gaining a BSc (Hons) Biochemistry, BSc (Hons) Biochemistry (Sandwich) or BSc (Hons) Biochemistry with a Year Abroad are eligible to apply for Associate Membership of the Royal Society of Chemistry; Early Career Membership of the Biochemical Society; and Associate Membership of the Royal Society of Biology on graduation.

G. Entry requirements

The normal entry requirements for the programme are:

104 UCAS points to include 2 science GCE A Levels (or equivalent) one of which must be a grade C in Chemistry (acceptable science A Levels are Biology, Human Biology, Psychology, Geography, Maths and Physics) or BTEC Extended Diploma in Applied Science with a minimum DMM profile to include a minimum of 4 chemistry-titled units at merit or above. A pass in the practical element of the science A Level is required. For IB 104 points from a minimum of 2 HL subjects at H4 or above to include Chemistry and one other Science (with the remaining points to come from a combination of HL, SL and Core).

Plus GCSE English language, Mathematics and double science (or 2 single sciences) at grade 4 or above (grade C under the old grading structure) (or equivalent).

Successful completion of Access to Science (or approved equivalent) with Merit profile in 45 credits at Level 3, 12 of which must be in Chemistry titled modules with a minimum of merit grade.

All International students are required to demonstrate an English Language capability of IELTS 6.0 (with no less than 5.5 in any band) or GCSE English language grade A-C.

Students who undertake a placement year or enrol on the 5LMS0003 Bioscience Work Experience module may be required to complete a satisfactory Disclosure and Barring Service check prior to taking up the placement, workplace or volunteering opportunity as a requirement of the place of work.

The programme is subject to the University's Principles, Policies and Regulations for the Admission of Students to Undergraduate and Taught Postgraduate Programmes (in [UPR SA03](#)), along with associated procedures. These will take account of University policy and guidelines for assessing accredited prior certificated learning (APCL) and accredited prior experiential learning (APEL).

If you would like this information in an alternative format please contact:
Terique Anderson, Student Administrator

If you wish to receive a copy of the latest Programme Annual Monitoring and Evaluation Report (AMER) and/or the External Examiner's Report for the programme, please email a request to aqo@herts.ac.uk

BSc (Hons) Biochemistry

Table 2: Development of Intended Programme Learning Outcomes in the Constituent Modules

This map identifies where the programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own learning, personal and professional development as the programme progresses.

Programme Learning Outcomes (as identified in section 1 and the following page)

Module Title	Module Code	Knowledge & Understanding								Intellectual Skills						Practical Skills		Transferable Skills										
		A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	C1	C2	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	
Cell and Microbiology	4LMS0005	x		x		x				x					x				x	x	x	x		x	x			
Molecular Structure and Reactivity	4LMS0040	x	x		x					x					x			x		x	x	x	x		x	x		
Human Physiology with Pharmacology	4LMS0002	x		x						x					x			x		x	x	x	x	x	x	x		
Practical and Transferable Skills	4LMS0006	x	x			x		x		x	x			x	x	x		x		x	x	x	x	x	x	x	x	
Introduction to Biochemistry	4LMS0001	x	x	x	x		x			x					x			x		x	x	x	x		x	x		
Molecular Biology and Genetics	4LMS0007	x				x				x								x		x	x	x	x		x	x		
Chemistry and Analytical Science	5LMS0023	x	x		x			x		x				x	x	x		x		x	x	x	x		x	x		
Genes and Genomes	5LMS0091	x		x	x	x				x	x				x	x	x		x		x	x	x		x	x		
Cell and Molecular Biology	5LMS0092	x		x	x		x	x	x	x					x	x	x		x		x	x	x		x	x		
Principles of Immunology	5LMS0027	x		x	x					x					x	x	x				x	x	x		x	x		
Biochemistry	5LMS0102	x	x	x	x	x	x			x					x	x	x		x		x	x	x		x	x		
Bioscience Research Methods	5LMS0001	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x	x	
Bioscience Work Experience	5LMS0003														x						x	x		x	x	x	x	x
Placement Year	6LMS0023	x								x	x		x	x	x	x		x		x	x	x	x	x	x	x	x	x
Year abroad	6LMS0022	x								x	x		x	x	x	x		x		x	x	x	x		x	x	x	x
Advanced Biochemistry	6LMS0153	x	x	x	x		x	x	x	x				x	x	x	x		x		x	x	x	x		x	x	
Cellular Differentiation and Development	6LMS0033	x			x	x	x			x	x				x	x	x		x		x	x	x		x	x		
Molecular Medicine	6LMS0032	x			x	x	x			x	x				x	x	x		x		x	x	x		x	x		
Applied and Integrated Molecular Science	6LMS0053	x	x	x	x	x	x	x	x	x	x				x	x	x		x		x	x	x	x	x	x	x	
Bioscience Research Project	6LMS0008	x								x	x	x	x	x	x	x		x		x	x	x	x		x	x	x	

KEY TO PROGRAMME LEARNING OUTCOMES

Knowledge and Understanding

- A1 acquire the specific knowledge appropriate to Biochemistry;
- A2 express biochemical reactions in chemical terms and understand the 'chemical logic' of metabolism;
- A3 have a broad knowledge of cell structure and metabolism - its commonality and diversity across species and its investigation;
- A4 understand how the structure of both small chemical entities and biological macromolecules determine their biological/biochemical properties;
- A5 have a knowledge and understanding of gene structure, replication, expression, inheritance, evolution and relevant experimental methods of analysis;
- A6 have a knowledge of enzymology at the structural, functional, kinetic and regulatory levels and appreciate methods for its investigation;
- A7 have a knowledge of chemical methods of synthesis and analysis;
- A8 appreciate how theoretical concepts of biochemistry and molecular biology can be applied to solve industrial and medical problems

Intellectual Skills Successful students will be able to:

- B1 analyse and solve problems related to Biochemistry.
- B2 understand the ethical implications of their work.
- B3 be able to execute and report a research project in order to develop skills necessary for independent research (BSc Hons).
- B4 apply theoretical concepts to the study of biochemistry and evaluate the relationships between theory and practice.
- B5 display an awareness of the existence and nature of value judgements.
- B6 demonstrate a critical approach in enquiry and a readiness to test hypotheses, interpret scientific data and, at Level 6, evaluate published literature.

Practical Skills

- C1 acquire appropriate laboratory skills, including safe working practices.
- C2 acquire appropriate computer skills.

Transferable Skills Successful students will be able to:

- D1 communicate effectively using a variety of formats.
- D2 use effectively a range of information sources.
- D3 organise and present intellectual argument commensurate with the Level of award.
- D4 work effectively both alone (e.g. on assignments or during the project)
- D5 work effectively as part of a team (e.g. in group work, during group discussions and workshops).
- D6 be numerate.
- D7 develop the skills required for continued self-managed professional development, reflective practice and life-long learning.
- D8 to appreciate the importance of graduate attributes through reflective practice.
- D9 develop skills relevant to a work-place environment.
- D10 develop the skills necessary to gain a knowledge and understanding of Bioscience topics in a different cultural environment.

Section 2

Programme management

Relevant QAA subject benchmarking statements
Type of programme
Date of validation/last periodic review
Date of production/ last revision of PS
Relevant to level/cohort
Administrative School

QAA Biosciences (2015)

Undergraduate
 February 13
 September 2016
 Level 4 entering September 2017
 School of Life and Medical Sciences

Table 3 Course structure

Course details					
Course code		Course description			JACS
HHBIOBIC		BSc (Hons) Biochemistry			C100
Course Instances					
Instances code	Intake	Stream	Instances Year	Location :	Mode of study
BIC1S	A	Biochemistry	1	Hatfield	Full-time/sandwich
BIC 2S	A	Biochemistry	2	Hatfield	Full-time/sandwich
BIC 3S	A	Biochemistry	3	Hatfield	Sandwich Placement/Study Abroad
BIC 3F	A	Biochemistry	3	Hatfield	Full-time
BIC 4S	A	Biochemistry	4	Hatfield	Sandwich
BIC P1P	A	Biochemistry	1	Hatfield	Part-time
BIC P2P	A	Biochemistry	2	Hatfield	Part-time
BIC P3P	A	Biochemistry	3	Hatfield	Part-time
BIC P4P	A	Biochemistry	4	Hatfield	Part-time
BIC P5P	A	Biochemistry	5	Hatfield	Part-time
BIC P6P	A	Biochemistry	6	Hatfield	Part-time