

Title of Programme: BSc (Hons) Biological Science

Programme Code: LMBSBLS

Programme Specification

This programme specification is relevant to students entering:
23 September 2024

Associate Dean of School (Academic Quality Assurance):
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Signature *SDWebley*

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 Biological Science

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
Final Qualification	BSc (Hons)
All Final Award titles	BSc (Hons) Biological Science
(Qualification and Subject)	BSc (Hons) Biological Science (Sandwich) BSc (Hons) Biological Science with a Year Abroad BSc (Hons) Biological Science with Study Abroad
FHEQ level of award	6

A. Programme Rationale

The programme is designed for students who wish to experience a broad education in Biological Science combined with the opportunity to specialise if they wish in later years of the programme. The breadth of the first year empowers the student to progress to a range of specialist degrees or to maintain a broader combination of subjects at Levels 5 and 6. In addition the programme 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. Graduates from accredited degree programmes are equipped with well-rounded knowledge and skill sets, making them highly employable both within and beyond their chosen field. 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 equipped for further study in Biology or graduate employment in a wide range of activities in industry, research or education.

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:

- a broad education in the biological sciences and an opportunity to maintain breadth at Level 6 or specialise in a selected area;
- develop the critical research design and analysis skills which are fundamental in all aspects of careers in the sciences;
- develop broad scientific laboratory skills across the disciplines within Biological Sciences through a substantial programme of practical laboratory exercise;
- support the development of the transferable employability skills and attributes necessary for the students' future professional development through academic study and continual lifelong learning as scientists.

Graduate Attributes

Our graduates will be capable and professional, creative and enterprising, and will build their social and global awareness throughout. In addition to their subject expertise and proficiency, as a University of Hertfordshire graduate, they will be:

- Professionally focused
- Globally minded
- Sustainability driven
- Digitally capable and confident
- Inclusive and collaborative
- Evidence based and ethical

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 (2023) and the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (2014) and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education (2021) have been used as a guiding framework for curriculum design.

Knowledge and Understanding	Teaching and learning methods	Assessment strategy
<p>Successful students will be able to:</p> <p>A1- acquire the specific knowledge appropriate to a study of Biological Science;</p> <p>A2- explain biological phenomena at cellular, molecular, genetic, biochemical, physiological and pharmacological levels and appreciate the investigative techniques;</p> <p>A3- appreciate the fundamental chemical principles on which a study of Biological Science is based;</p> <p>A4- have a knowledge of both the uniformity and diversity of cell structure and metabolism;</p> <p>A5- appreciate the principles of inheritance, gene expression and replication and evolution</p> <p>A6- explain in depth selected areas of bioscience;</p> <p>A7- appreciate how theoretical concepts of biological science can be applied to solve industrial and/or biological problems</p> <p>A8- gain experience in the application of theoretical concepts of biological science to solve industrial, business, research, medical or biological problems</p>	<p>Acquisition of knowledge and understanding is through a combination of lectures, laboratory classes and workshops throughout the course as well as the research project and, for sandwich students, the industrial training experience.</p> <p>The acquisition of A2 is achieved through lectures, workshops and practical's in all Level 4 and 5 modules. Investigative methods will be taught in Practical and Transferable Skills, developed in Bioscience Research Methods and reinforced in Level 6 modules.</p> <p>A3 is achieved through the lecture, practical and workshop programme of Chemistry for the Biological Sciences or Molecular Structure and Reactivity and is reinforced in Core Biochemistry.</p> <p>A4 is acquired through lectures, workshops and practicals in Cell and Microbiology, Core Biochemistry, and Human Physiology with Pharmacology at Level 4 and developed in Cell and Molecular Biology at Level 5. A5 is taught in Molecular Biology and Genetics at Level 4 and further discussed in Genes and Genomes at Level 5.</p> <p>A6 is acquired in the chosen Level 6 modules and is facilitated by the lecture, workshop and practical programmes with major contributions from interpretative exercises and seminar presentations.</p>	<p>Testing of knowledge and understanding are assessed by a combination of laboratory reports, seminars, <i>viva voce</i>, group work, problem-solving exercises, interpretative exercises written assignments, tests and unseen examinations. (A1 – A7).</p> <p>For students who are awarded the degree in Biological Science (Sandwich), learning outcomes associated with the placement year in an approved workplace (A8) are assessed on performance throughout the year and a placement report.</p>

	<p>A7 is acquired throughout final year modules.</p> <p>Acquisition of A8 is achieved in the optional sandwich placement year or Bioscience Work Experience module. 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>	
Intellectual skills	Teaching and learning methods	Assessment strategy
<p>B1- analyse and solve problems related to Biological Science.</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 biological science 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. Analysis of biological problems will be focused on in final year modules.</p> <p>Students are given a firm grounding in ethical practices in science (B2) throughout Level 4 and issues pertinent to Biological Science 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 Level 6 modules, 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</p>	<p>Intellectual skills are assessed through laboratory reports and written assignments. In addition B1 is assessed by unseen examinations and tests. The development of the project proposal in Bioscience Research Methods demonstrates B1, B2 and B4.</p> <p>The 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 and tests, interpretative exercises, seminars, <i>vivas</i> and the project.</p> <p>Regular on-line assessments are used for maths skills and data analysis and interpretation.</p>

	<p>Level 5 and reinforced in the project at Level 6.</p> <p>Throughout, the learner is encouraged to develop intellectual skills further by independent study.</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. 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 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.</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</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, <i>vivas</i> and poster presentations at Levels 5 and 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 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</p>	<p>Transferable skills are assessed through testing of D1, D2 and D3 is through a combination of essays, abstracts, laboratory reports, posters, seminars, group reports, the 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, 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 as a portfolio in Practical and</p>

knowledge and understanding of Bioscience topics in a different cultural environment.

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 BRM tutor groups analyse the arguments contained in a research paper.

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 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 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

Transferable Skills, Bioscience Research Methods.

D7 is assessed in Practical and Transferable Skills and Bioscience Research Methods. The placement report will assess this skill, as does the 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 a period of study abroad of either one or two semesters.

and Integrated Biological Science module

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

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), with Study Abroad (4 years) and part-time (6 years) modes, and leads to the award of a BSc (Hons) Biological Science; BSc (Hons) Biological Science (Sandwich), BSc (Hons) with Study Abroad or BSc (Hons) Biological Science 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 (e.g. successful completion of level 4/5 of comparable degrees elsewhere). Intake is normally Semester A.

Work-Based Learning, including Sandwich Programmes

BSc (Hons) Biological Science (Sandwich)

A designated sandwich programme leads to a University award in the sandwich mode and the word "Placement" 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 30 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 Placement Biosciences (6LMS2096) for the placement year.

Bioscience Work Experience (5LMS2081)

We encourage students to participate in work experience and all students are encouraged to enrol on the optional 5LMS2081 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 undertake a summer placement between Level 5 and Level 6.

Student Exchange programme

Incoming Exchange

Incoming students are permitted to study modules on the course at Levels 4, 5 and 6, subject to timetabling constraints.

Study Abroad

BSc (Hons) Biological Science with a Year Abroad; BSc (Hons) Biological Science with Study Abroad

There is also an option to study abroad at approved partner institutions. Qualification for an award 'with Study Abroad' is deemed to be not less than one semester, while 'with 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 Clinical, Pharmaceutical & Biological Science. Students who study abroad on Year Abroad will be registered on the module Year Abroad Biosciences (6LMS2095).

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 Placement or Year Abroad option, progressing directly to Level 6, are automatically transferred to the full-time or relevant part-time mode.

Programme Structure

The programme structure and progression information below (Table 1a and 1b) is provided for the Honours awards. 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.

Table 1a Outline Programme Structure

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

Level 4

The 120 credits at Level 4 comprise 105 credits of compulsory modules and 15 credits from an optional module.

	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Compulsory Modules							
Module Title							
Cell and Microbiology	4LMS0155	15	50	0	50	0	A
Human Physiology with Pharmacology	4LMS2117	30	30	0	70	0	AB
Practical and Transferable Skills	4LMS2119	30	70	0	0	30	AB
Core Biochemistry	4LMS0154	15	0	50	50	0	B
Molecular Biology and Genetics	4LMS0007	15	0	0	100	0	B
Optional Modules							
Module Titles							
Chemistry for Biologists ¹	4LMS2118	15	50	0	50	0	A
Molecular Structure and Reactivity ²	4LMS2120	15	40	40	20	0	A
Bioinformatics*	4WLM2000	15	0	0	100	0	C

^{1,2}Students must choose one of these two modules

*Students may choose to take this online module in Semester C and is over and above 120 credits for the academic year.

Progression to level 5 requires a minimum of 105 credits and pass in Practical and Transferable Skills in the Biosciences.

Level 5

The 120 credits at Level 5 comprise 60 credits of compulsory modules and 60 credits chosen from the optional modules.

	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Compulsory Modules							
Module Title							
Genes and Genomes	5LMS2085	15	50	0	0	50	A
Cell and Molecular Biology	5LMS2086	15	0	50	50	0	B
Principles of Immunology	5LMS0009	15	0	50	50	0	A
Bioscience Research Methods	5LMS2080	15	100	0	0	0	AB

	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Optional Modules							
Module Title							
Blood Sciences	5LMS2083	30	50	50	0	0	AB
Microbiology of Disease	5LMS0005	15	25	0	25	50	A
Cytology and Histopathology	5LMS2082	15	50	0	0	50	B
Biochemistry for Pharmacology	5LMS0103	15	50	50	0	0	A
Pharmacology	5LMS2084	30	40	40	20	0	AB
Biology of Disease	5LMS0022	15	50	0	50	0	B
Biochemistry	5LMS0147	30	25	0	25	50	AB
Chemistry and Analytical Science	5LMS0104	30	50	50	0	0	AB
Bioscience Work Experience*	5LMS2081	15	100	0	0	0	AB

* This module may be taken in addition to 120cp of subject-specific modules and will not be included in the degree algorithm for calculation of the final award.

Placement year- Biological Science

	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Optional Modules							
Module Titles							
Sandwich Placement Bioscience	6LMS2096	0	P/F	0	0	0	ABC
Year Abroad Bioscience	6LMS2095	0	P/F	0	0	0	ABC

Level 6

The 120 credits at Level 6 comprise the 30 credit Bioscience Research Project plus 90 credits from optional modules.

Compulsory Modules	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Module Title							
Bioscience Research Project	6LMS0008	30	100	0	0	0	AB

Optional Modules – Students choose 90 credits from the following modules	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Module Title							
Cellular and Molecular Pathology	6LMS0140	30	0	50	50	0	AB
Clinical Biochemistry	6LMS2093	30	100	0	0	0	AB
Clinical Immunology and Molecular Pathogenesis	6LMS2092	30	70	0	0	30	AB
Neurobiology and Disease	6LMS0029	30	50	50	0	0	AB
Translation of Science into Medicine	6LMS2094	30	60	0	40	0	AB
Therapeutic Pharmacology	6LMS0152	30	50	50	0	0	AB
Advanced Biochemistry	6LMS0196	30	25	50	25	0	AB
Advanced Therapies	6LMS2090	30	100	0	0	0	AB
Cellular Technologies and Applications to Disease	6LMS2091	30	60	0	40	0	AB

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 1a:ii Outline Programme Structure

Mode of Study Part-time

This requires the same modules to be completed as per the full-time pathway. The following describes the standard part-time programme structure, with completion of 60 credits per year. Deviations from this structure are possible, subject to meeting module prerequisites and agreement by the Programme Leader. Part-time students may study up to 75 credits a year. The progression requirements above also apply for this mode of study. 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

Year 1 / Level 4

The 120 credits at Level 4 comprise 105 credits of compulsory modules and 15 credits from an optional module.

	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Compulsory Modules							
Module Title							
Cell and Microbiology	4LMS0155	15	50	0	50	0	A
Practical and Transferable Skills	4LMS2119	30	70	0	0	30	AB
Molecular Biology and Genetics	4LMS0007	15	0	0	100	0	B

Year 2 / Level 4

	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Compulsory Modules							
Module Title							
Human Physiology with Pharmacology	4LMS2117	30	30	0	70	0	AB
Core Biochemistry	4LMS0154	15	0	50	50	0	B

Students should also choose one of the following modules:

	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Optional Modules							
Module Titles							
Chemistry for Biologists ¹	4LMS2118	15	50	0	50	0	A
Molecular Structure and Reactivity ²	4LMS2120	15	40	40	20	0	A
Bioinformatics*	4WLM2000	15	100	0	0	0	C

^{1,2}Students must choose one of these two modules

*Students may choose to take this online module in Semester C and is over and above the 120 credits for Level 4

Progression to level 5 requires a minimum of 105 credits and pass in Practical and Transferable Skills in the Biosciences.

Year 3 / Level 5

The 120 credits at Level 5 comprise 60 credits of compulsory modules and 60 credits chosen from the optional modules.

Compulsory Modules Module Title	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Blood Sciences	5LMS2083	30	50	50	0	0	AB
Cell and Molecular Biology	5LMS2086	15	0	50	50	0	B
Principles of Immunology	5LMS0009	15	0	50	50	0	A

Year 4 / Level 5

Compulsory Modules Module Title	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Bioscience Research Methods	5LMS2080	15	100	0	0	0	AB

Students can also choose the following modules in either Year 3 or Year 4

Optional Modules Module Title	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Blood Sciences	5LMS2083	30	50	50	0	0	AB
Microbiology of Disease	5LMS0005	15	25	0	25	50	A
Cytology and Histopathology	5LMS2082	15	50	0	0	50	B
Biochemistry for Pharmacology	5LMS0103	15	50	50	0	0	A
Pharmacology	5LMS2084	30	60	40	0	0	AB
Biology of Disease	5LMS0022	15	50	0	50	0	B
Biochemistry	5LMS0147	30	25	0	25	50	AB
Chemistry and Analytical Science	5LMS0104	30	50	50	0	0	AB
Bioscience Work Experience*	5LMS2081	15	100	0	0	0	AB

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

Progression to Level 6 requires a minimum of 105 credits at Level 5. The module 5LMS2081 Bioscience Work Experience may not be included in the credits required for progression.

Placement year

Optional Modules Module Titles	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Sandwich Placement Bioscience	6LMS2096	0	100	0	0	0	ABC

Year 5 / Level 6

The 120 credits at Level 6 comprise the 30 credit Bioscience Research Project plus 90 credits from optional modules.

	Module Code	Credit Points	% Examination	% coursework	% Practical	Semesters
Compulsory Modules						
Module Titles						
Bioscience Research Project	6LMS0008	30	0	100	0	AB

Students can also choose the following modules in either Year 5 or Year 6

	Module Code	Credit Points	% Coursework	% Examination	% Tests	% Practical	Semesters
Optional Modules							
Module Title							
Cellular and Molecular Pathology	6LMS0140	30	0	50	50	0	AB
Clinical Biochemistry	6LMS2093	30	100	0	0	0	AB
Clinical Immunology and Molecular Pathogenesis	6LMS2092	30	70	0	0	30	AB
Neurobiology and Disease	6LMS0029	30	50	50	0	0	AB
Translation of Science into Medicine	6LMS2094	30	60	0	40	0	AB
Therapeutic Pharmacology	6LMS0152	30	50	50	0	0	AB
Advanced Biochemistry	6LMS0196	30	25	50	25	0	AB
Advanced Therapies	6LMS2090	30	100	0	0	0	AB
Cellular Technologies and Applications to Disease	6LMS2091	30	60	0	40	0	AB

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.

Choice of optional modules will depend on satisfactory completion of pre-requisite modules and compatibility of timetable.

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)	Biological Science	360 credit points including 240 at level 6/5 of which	6	All programme learning outcomes except A8, D9 and D10 for all graduates.

		120 must be at level 6		D9 also achieved for those who successfully complete 5LMS2081 Bioscience Work Experience (see Table 2)
BSc (Hons)	Biological Science (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)	Biological Science 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 A8 and D9 for all graduates. D10 is achieved through at least two semesters of study abroad completed and at least 90 credit points accumulated, or a combination of one semester of study abroad and one semester of placement activity abroad. D9 also achieved for those who successfully complete 5LMS2081 Bioscience Work Experience (see Table 2)
BSc (Hons)	Biological Science with Study Abroad	360 credit points including 240 at level 6/5 of which 120 must be at level 6	6	All programme learning outcomes except A8 and D9 for all graduates. D10 is achieved through at least two semesters of study abroad completed and at least 90 credit points accumulated, or a combination of one semester of study abroad and one semester of placement activity abroad. D9 also achieved for those who successfully complete 5LMS2081 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	Biological Science	300 credit points including 180 at level 6/5 of which 60 must be at level 6	6	All programme learning outcomes except A8, D9 and D10 for all graduates. D9 also achieved for those who successfully complete 5LMS2081 Bioscience Work Experience (see Table 2)
BSc	Biological Science (Sandwich)	300 credit points including 180 at level 6/5 of which 60 must be at level 6	6	All programme learning outcomes except D10 (see Table 2)
BSc	Biological Science with a Year Abroad	300 credit points including 180 at level 6/5 of which 60 must be at level 6	6	All programme learning outcomes except A8 and D9 for all graduates. D10 is achieved through at least two semesters of study abroad completed and at least 90 credit points accumulated, or a combination of one semester of study

			abroad and one semester of placement activity abroad. D9 also achieved for those who successfully complete 5LMS2081 Bioscience Work Experience (see Table 2)
BSc	Biological Science with Study Abroad		All programme learning outcomes except A8 and D9 for all graduates. D10 is achieved through at least two semesters of study abroad completed and at least 90 credit points accumulated, or a combination of one semester of study abroad and one semester of placement activity abroad. D9 also achieved for those who successfully complete 5LMS2081 Bioscience Work Experience (see Table 2)

The University of Hertfordshire is a signatory of the Concordat of Openness on animal research and animals are used in research and teaching, when there are no alternatives.

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 & title)	Must be included in classification algorithm?
LMBSBLS	BLS3F/4S	BSc (Hons) Biological Science	6LMS0008 Bioscience Research Project	Yes
LMBSBLS	BLS4S	BSc (Hons) Biological Science with a Year Abroad	6LMS0008 Bioscience Research Project	Yes
LMBSBLS	BLS4S	BSc (Hons) Biological Science (Sandwich)	6LMS0008 Bioscience Research Project	Yes
LMBSBLS	BLS4S	BSc (Hons) Biological Science with Study Abroad	6LMS0008 Bioscience Research Project	Yes

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

- The grade achieved in the optional 5LMS2081 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 5LMS2081 Bioscience Work Experience may not be included in the credits required for progression.
- A pass grade in the final year Bioscience Research Project is required for a final award.
- A pass grade for the Sandwich Placement Year is mandatory for the receipt of BSc (Hons) Biological Science (Sandwich).
- A pass grade for the Year Abroad is mandatory for the award of BSc (Hons) Biological Science with a Year Abroad.
- Certain modules include practical sessions which have an attendance requirement of at least 50% in order to meet the learning outcomes of the module. Failure to attend the required proportion of sessions will normally result in the award of an FREFC (Fail, referral) grade.
- 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 FREFC (Fail, referral) 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:

- A Programme Leader and Deputy Programme Leaders who are responsible for the day-to-day management
- Associate Deans of School (AQA and Learning and Teaching) who have delegated responsibility for programmes in the Department of Clinical, Pharmaceutical & Biological Science
- Learning and Teaching Innovation Centre who oversees continued professional development of academic staff, assessment strategies and pedagogical matters related to the development and delivery of the Programme
- Year leads who are responsible for overseeing academic and pastoral support for each year in the Programme
- An Admissions Tutor, with specific responsibility for open days and selection
- A Placements Tutor to assist with the procurement of placements
- Module leaders who are responsible for individual modules
- The programme committee, the membership of which includes student representatives, academic and professional staff

Support

Students are supported by:

- An induction week at the beginning of each new academic session
- Personal tutors to provide academic and pastoral support
- The Programme Leader and Deputy Programme Leaders to help students understand the course/programme structure and provide advice and support.
- Module leaders to help students understand the aims, outcomes and organisation of the modules
- Placement Tutor who oversees the management of placements and individual placement tutors, members of academic staff who support and visit students on placement
- Academic supervisors in partner institutions for students who take a year abroad
- 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
- A student counselling service, within the Student Wellbeing Centre.
- Canvas, a versatile online interactive intranet and learning environment
- Guided student-centred learning on Canvas module sites
- Access to extensive digital and print collections of information resources
- Attractive modern study environments in 2 Learning Resources Centres
- A Mathematics Drop-in Centre
- A Medical Centre
- University Disability Advisers
- An Equality Office
- Careers and Employment Service
- The Students' Union
- Student representatives on the programme committee, who are supported by UHSU and the School Student Community Organiser
- Overseas Orientation

- English language support for overseas students
- The School of Life and Medical Sciences Academic Support Unit (ASU), helping students with academic challenges and supporting them to fulfil their potential

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 Student Placement Handbook

The [Ask Herts](#) website provides information on a wide range of resources and services available at the University of Hertfordshire including academic support, accommodation, fees, funding, visas, wellbeing services and student societies.

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/secreg/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.

In accordance with section 4(5) of the Higher Education and Research Act 2017 (HERA), the UK Office for Students (OfS) has registered the University of Hertfordshire in the register of English higher education providers. The Register can be viewed at: <https://www.officeforstudents.org.uk/advice-and-guidance/the-register/the-ofs-register/>.

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 Biology or Chemistry (Acceptable science A Levels are Human Biology, Psychology, Geography, Maths, Physics, ICT and Sports Studies) or BTEC Extended Diploma in Applied Science with a minimum DMM profile. 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 Biology or 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.

All students from non-majority English speaking countries require proof of English language proficiency, equivalent to an overall IELTS score of 6.0 with a minimum of 5.5 in each band.

Students who undertake a placement year or enrol on the 5LMS2081 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.

For current entry tariff point requirements, please refer to the relevant page for the Course on the University website or on the online prospectus.

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:
icaq@herts.ac.uk

If you wish to receive a copy of the latest External Examiner's Report for the programme, please email a request to aqo@herts.ac.uk

BSc (Hons) Biological Science

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)																									
		Knowledge & Understanding							Intellectual Skills						Practical Skills				Transferable Skills								
Module Title	Module Code	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
Level 4	Cell and Microbiology	4LMS0155	X	X		X	X			X					X			X	X	X	X		X	X			
	Molecular Structure and Reactivity	4LMS2120	X	X						X					X		X	X	X	X	X		X	X			
	Chemistry for Biologists	4LMS2118	X							X					X		X	X	X	X	X		X	X			
	Human Physiology with Pharmacology	4LMS2117	X	X		X				X					X		X	X	X	X	X	X	X	X			
	Practical and Transferable Skills	4LMS2119	X	X	X	X				X	X			X	X	X	X	X	X	X	X	X	X	X	X		
	Core Biochemistry	4LMS0154	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	X		X	X			
Bioinformatics	4WLM2000	X						X		X						X	X	X		X		X					
Level 5	Genes and Genomes	5LMS2085	X	X			X			X				X	X	X	X	X	X	X	X		X	X			
	Cell and Molecular Biology	5LMS2086	X	X		X				X				X	X	X	X	X	X	X	X		X	X			
	Principles of Immunology	5LMS0009	X	X		X		X		X				X	X	X		X	X	X	X		X	X			
	Blood Sciences	5LMS2083	X	X		X		X		X				X	X	X		X	X	X	X	X	X	X			
	Pharmacology	5LMS2084	X	X				X		X				X	X	X	X	X	X	X	X	X	X	X			
	Microbiology of Disease	5LMS0005	X	X		X		X		X				X	X	X	X	X	X	X	X		X	X			
	Biochemistry for Pharmacology	5LMS0103	X	X		X		X		X				X	X	X	X	X	X	X	X		X	X			
	Biochemistry	5LMS0147	X	X		X	X	X		X				X	X	X	X	X	X	X	X	X	X	X			
	Cytology and Histopathology	5LMS2082	X	X		X		X		X				X	X	X		X	X	X	X		X	X			
	Biology of Disease	5LMS0022	X	X		X		X		X				X	X	X	X	X	X	X	X		X	X			
	Chemistry and Analytical Science	5LMS0104	X		X									X	X	X	X	X	X	X	X		X	X			
Bioscience Research Methods	5LMS2080	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			

Module Title	Module Code	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
Bioscience Work Experience	5LMS2081																	X	X		X	X	X	X	X	X	
Year Abroad Bioscience	6LMS2095	X						X					X	X	X	X	X	X	X	X	X		X	X	X		X
Sandwich Placement Bioscience	6LMS2096	X						X	X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Advanced Biochemistry	6LMS0196	X	X		X		X	X		X			X	X	X	X	X	X	X	X	X		X	X			
Cellular and Molecular Pathology	6LMS0140	X	X		X	X	X	X		X			X	X	X	X			X	X	X	X		X	X		
Clinical Biochemistry	6LMS2093	X	X		X		X	X		X			X	X	X	X			X	X	X	X		X	X		
Clinical Immunology and Microbial Pathogenesis	6LMS2092	X	X		X		X	X		X			X	X	X		X	X	X	X	X	X	X	X	X		
Cellular Technologies and Applications to Disease	6LMS2091	X	X			X	X	X	X	X	X		X	X	X		X	X	X	X	X	X		X	X		
Advanced Therapies	6LMS2090	X	X			X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X		
Neurobiology and Disease	6LMS0029	X	X		X	X	X	X		X			X	X	X	X	X	X	X	X	X	X	X	X	X		
Therapeutic Pharmacology	6LMS0152	X	X		X		X	X		X			X	X	X	X	X	X	X	X	X		X	X			
Translation of Science into Medicine	6LMS2094	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	X	X	

Level 6

KEY TO PROGRAMME LEARNING OUTCOMES

Knowledge and Understanding

- A1. acquire the specific knowledge appropriate to a study of Biological Science;
- A2. explain biological phenomena at cellular, molecular, genetic, biochemical, physiological and pharmacological levels and appreciate the investigative techniques;
- A3. appreciate the fundamental chemical principles on which a study of bioscience is based;
- A4. have a knowledge of both the uniformity and diversity of cell structure and metabolism;
- A5. appreciate the principles of inheritance, gene expression and replication and evolution;
- A6. explain in depth selected areas of bioscience;
- A7. appreciate how theoretical concepts of biological science can be applied to solve industrial and medical problems
- A8. gain experience in the application of theoretical concepts of biological science to solve industrial, business, research, medical or biological problems

Intellectual Skills

- B1. analyse and solve problems related to Biological Science.
- 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 biological science 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

- 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 independently (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.

Table 3: Development of Graduate Attributes in the Constituent Modules

This map identifies where the Graduate Attributes are delivered in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the development of the Graduate Attributes (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own personal and professional development as the programme progresses. [Note that there is no requirement for the Graduate Attributes to be assessed through these modules] *NB. Each module should develop at least one of the graduate attributes, and each graduate attribute should be developed in at least one module, ideally more. There should be a good spread across the programme without every attribute being developed in the majority of modules. Delete the D from the boxes where they do not apply. DELETE THIS COMMENT*

D = Delivered

	Module Title	Module Code	Professionally Focused	Globally Minded	Sustainability Driven	Digitally capable & confident	Inclusive and collaborative	Evidenced based and Ethical
L e v e l 4	Cell and Microbiology	4LMS0155	D	D		D	D	D
	Molecular Structure and Reactivity	4LMS2120	D	D	D	D	D	D
	Chemistry for Biologists	4LMS2118	D	D		D	D	D
	Human Physiology with Pharmacology	4LMS2117	D	D		D	D	D
	Practical and Transferable Skills	4LMS2119	D	D	D	D	D	D
	Core Biochemistry	4LMS0154	D	D	D	D	D	D
	Molecular Biology and Genetics	4LMS0007	D	D	D	D	D	D
	Bioinformatics	4WLM2000	D	D		D	D	D
L e v e l 5	Genes and Genomes	5LMS2085	D	D		D	D	D
	Cell and Molecular Biology	5LMS2086		D		D		D
	Principles of Immunology	5LMS0009	D	D	D			D
	Blood Sciences	5LMS2083	D	D		D	D	D
	Pharmacology	5LMS2084	D	D	D	D	D	D
	Microbiology of Disease	5LMS0005	D	D	D	D	D	D
	Biochemistry for Pharmacology	5LMS0103	D	D		D	D	D
	Biochemistry	5LMS0147	D	D		D	D	D
	Cytology and Histopathology	5LMS2082	D		D	D		D
	Biology of Disease	5LMS0022		D			D	D
	Chemistry and Analytical Science	5LMS0104	D			D		D
	Bioscience Research Methods	5LMS2080	D	D	D			D
Bioscience Work Experience	5LMS2081	D	D			D		
Placement Year			D	D	D	D	D	D

L e v e l 6	Bioscience Research Project	6LMS0008	D	D	D	D	D	D
	Advanced Biochemistry	6LMS0196	D	D	D	D	D	D
	Cellular and Molecular Pathology	6LMS0140	D	D	D	D	D	D
	Clinical Biochemistry	6LMS2093	D	D	D	D	D	D
	Clinical Immunology and Microbial Pathogenesis	6LMS2092	D	D		D	D	D
	Cellular Technologies and Applications to Disease	6LMS2091	D	D	D	D	D	D
	Advanced Therapies	6LMS2090	D	D	D	D	D	D
	Neurobiology and Disease	6LMS0029	D	D		D	D	D
	Therapeutic Pharmacology	6LMS0152	D	D	D		D	D
	Translation of Science into Medicine	6LMS2094	D	D	D		D	D

Section 2

Programme management

Relevant QAA subject benchmarking statements	QAA Biosciences Science (2023)
Type of programme	Undergraduate
Date of validation/last periodic review	November 23
Date of production/ last revision of PS	March 2023
Relevant to level/cohort	Level 4 entering September 2024
Administrative School	School of Life and Medical Sciences
Language of Delivery	English

Table 4 Course structure

Course details			
Course Code	Course Description	HECOS	UCAS
LMBSBLS	BSc (Hons) Bioscience (Biological Science) (Revised 2024)	100346	C902