

Programme Specification

BSc (Hons) Biochemistry (2020-21)

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided.

Awarding Institution	University of Southampton
Teaching Institution	University of Southampton
Mode of study	Full-time
Duration in years	3 years, following standard progression for a FT student
Accreditation details	Not currently applicable – but aligned with RSB guidelines
Final award	Bachelor of Science - Honours
Name of award	Biochemistry
Interim Exit awards	Bachelor of Science (Ordinary) Diploma of Higher Education Certificate of Higher Education
FHEQ level of final award	6
UCAS code	C700
Programme code	8573
QAA Subject Benchmark or other external reference	QAA Subject Benchmark Statements for Biomedical Science (2019) and QAA Subject Benchmark Statements for Biosciences (2019)
Programme Lead	Dr Hannah Siddle
Date specification was written	January 2020

Programme Overview

Brief outline of the programme

From DNA to proteins, from single molecules to cells, biochemistry answers the ultimate questions about how living organisms and systems work. Our BSc Biochemistry degree programme provides in depth training in biochemistry, with compulsory subjects in Part 1 and Part 2 and opportunities to specialise in Part 3. Our flexible course system offers a wide range of options, including the opportunity to study abroad and a year out in industry for those who want to gain experience in an industrial setting.

The BSc in Biochemistry programme includes a strong practical component to give you the skills and knowledge required for a career in this subject area. Our graduates are in considerable demand in a variety of areas of employment, including healthcare, bioengineering and the pharmaceutical industry. You will be taught by academic staff who are actively engaged in research at the forefront of their discipline.

Your contact hours will vary depending on your module/option choices. Full information about contact hours is provided in individual module profiles.

Learning and teaching

Study is divided into three parts, each corresponding to one full time year of study. In Part 1 you will undertake a combination of lectures, tutorials, practical classes, coursework and projects. Laboratory based practicals and other components of in-course assessment contribute to your final mark in Part 1 and Part 2. We also provide workshops and pastoral tutorials in which you can receive specific help on the content of your lectures. In a typical week students attend eight 45-minute lectures, an average of two 3 hour practical classes and may also attend a small group tutorial. In Part 3 you have the opportunity to undertake an independent laboratory project, data analysis project, literature project or select from a range of project modules studying the biosciences in business, education, ethics and communication. Throughout the programme you

will be expected to undertake independent reading both to supplement and consolidate the taught material and to broaden your knowledge and understanding of biochemistry.

Assessment

You will be assessed by a combination of continuous assessment and written examinations to test your knowledge and understanding of the lecture, practical and tutorial material. Continuous assessment is based on performance in tutorials, workshops, in-class tests and practicals. Examinations are held at the end of each semester for 7.5 ECTS modules and at the end of semester 2 for 15 ECTS modules. Part 1 work is excluded from the final degree classification. A weighting of 0:1:2 is applied to the three parts to obtain the final grade for the Honours Degree Programme.

Special Features of the programme

The BSc Biochemistry degree provides a flexible programme with which to pursue your interest in biochemistry to the frontiers of our knowledge in this discipline. Part 1 and Part 2 provide you with a solid foundation in biochemistry and experience of key laboratory skills. In Part 3 you will have the opportunity to develop your own interests in particular fields of research supported by a range of advanced Part 3 modules. These modules are taught by researchers at the forefront of their disciplines. You will also have the opportunity to conduct an original research project in areas such as molecular and cellular biology, neuroscience, structural biology and plant biochemistry. The analytical and practical skills acquired during this programme provide a strong foundation for a broad range of careers extending beyond those required by researchers in biochemistry.

Alongside core modules, we offer a broad range of modules in biochemistry and the wider area of biological sciences, which will give you the flexibility to follow your particular interests as you progress through your degree. Furthermore, there are also modules available in other faculties including modern languages and broader interdisciplinary modules, which will give you the choice of a broader portfolio of skills and experience, should you so wish.

In the second semester of Part 2, our highest achieving students have the opportunity to study overseas on a “study abroad” module, at partner universities in Australia, New Zealand, Europe and Asia. While abroad, you must undertake modules which give you an equivalent learning experience and related disciplines to those you would have studied at Southampton. Therefore, the university selected by the student will be considered on a case-by-case basis, in consultation with the programme lead. Students are also encouraged to apply for a year out in industry between Part 2 and Part 3 of their studies.

Our Part 3 laboratory and in silico research projects enable students to participate in cutting-edge research, with the ability to perform independent experiments or data analysis as part of a wider biochemistry research programme. We also offer project modules for those whose career interests are developing in different directions, with research topics in Bioscience Business, Bioscience Education, Science Communication and Bioscience Ethics.

Please note: As a research-led University, we undertake a continuous review of our programmes to ensure quality enhancement and to manage our resources. As a result, this programme may be revised during a student’s period of registration; however, any revision will be balanced against the requirement that the student should receive the educational service expected. Please read our [Disclaimer](#) to see why, when and how changes may be made to a student’s programme.

Programmes and major changes to programmes are approved through the University’s [programme validation process](#) which is described in the University’s [Quality handbook](#).

Educational Aims of the Programme

The aims of the programme are to provide you with:

1. a wide range of interesting and contemporary courses with flexibility and choice, but allowing you to focus increasingly as you progress through the programme;

2. a sound scientific knowledge base in both theoretical and practical biochemistry
3. an ability to describe and comment on specific aspects of current research in biochemical sciences
4. an opportunity to develop a range of transferable skills (for example, information and communication technology)
5. skills in team working, written and oral communication, time management, planning, data collection and presentation);
6. opportunities to develop your skills of critical thinking and to show that you can pursue independent study;
7. an opportunity to undertake an independent project on a biochemical topic;
8. an education and training suitable for a wide variety of careers and that will prepare you for higher degrees and careers in biochemical research or graduate entry to medicine;
9. the capability of life-long learning, study and enquiry.

Programme Learning Outcomes

By the end of this programme you will be able to:

- Show knowledge and understanding of a range of topics relevant to biochemistry, as detailed in the learning outcomes for the core and compulsory modules for this programme
- Use a range of practical skills and techniques relevant to biochemistry, as detailed in the learning outcomes for the core and compulsory modules for this programme
- Collect and analyse experimental data
- Interpret and write up the results of experiments
- Create and deliver a presentation on a topic relevant to biochemistry
- Conduct research into an area of science relevant to biochemistry
- Produce a dissertation, based on scientific research
- Have an appreciation of the ethical and societal aspects of research in the biosciences

As well as these programme level learning outcomes, which must be read in conjunction with those of the core and compulsory modules in the programme, you will have been assessed in learning outcomes related to Knowledge and Understanding, Subject Specific Intellectual and Research Skills, and Transferable and Generic Skills.

Knowledge and Understanding

Having successfully completed this programme you will be able to demonstrate critical awareness of current issues in biochemistry, and comprehensive knowledge and systematic understanding of:

1. the structure and function of biologically important molecules, and how these interact;
2. how genetic information is stored, accessed and used in a cellular context;
3. the principles of genetic inheritance;
4. the role of metabolic pathways in the production of energy and other components essential for cell life and growth;
5. the techniques used to study biological macromolecules;
6. how biotechnology is used in research and medicine;
7. the composition and spatial organisation of the cell, including cell division;
8. how cells communicate with each other;
9. the basis of homeostasis and other key physiological processes;
10. how cells become specialised, form tissues and functions within the major organs.

Teaching and Learning Methods

You will be taught using a combination of lectures, tutorials, practical classes, course work and projects. These activities will enable you to develop a critical understanding of biochemistry and become familiar with the techniques that are employed in modern biochemical research. These skills will be consolidated in Part 3, where they will be employed as part of extended research or literature projects or applied in modules looking at the Biosciences in Business, Education, Ethics or Communication. Embedded within these modules are opportunities to develop your transferable and generic skills, including communication, critical analysis and problem solving.

Assessment methods

You will be assessed by a combination of continuous assessment and written/computer based exams. Continuous assessment will be assessed by tutorials, practical and project work, providing an opportunity for you to demonstrate your understanding of the subject area and your practical competencies.

Subject Specific Intellectual and Research Skills

Having successfully completed this programme you will be able to:

1. formulate and test hypotheses by planning, conducting and reporting a programme of biochemical research in the form of a project, either directly (from your own lab work or data mining), or indirectly through analysis of the work of others;
2. use a range of biochemical laboratory equipment to generate data;
3. use computer software to record and/or analyse biochemical data and determine their importance and validity;
4. analyse and solve complex biochemical problems;
5. integrate your biochemistry knowledge base with other selected disciplines such as physiology, biology, pharmacology or chemistry;
6. integrate and evaluate biochemical data from a variety of sources, including primary source material in journals;
7. understand how the boundaries of biochemical knowledge are advanced through research;
8. identify ethical issues in biochemistry research.

Teaching and Learning Methods

In addition to the methods described above you will be supervised in practical classes and during your final year project(s) by both academic staff members, postdoctoral and postgraduate researchers. As part of your final year project you will be guided in critically reviewing the relevant literature.

Assessment methods

Your subject specific skills will be assessed as described above. Experimental and research skills are assessed through an appropriate combination of laboratory reports, project reports and presentations.

Transferable and Generic Skills

The transferable skills you will develop during your degree are those that will improve your employability and will be of use to you in your future career. Having successfully completed this programme you will be able to:

1. communicate/present effectively both verbally and in writing to both specialised and non-specialised audiences;
2. work as a member of a team;
3. use information technology and other resources to find, extract and synthesise information;
4. solve problems relating to quantitative information;
5. learn independently in a spirit of critical enquiry;
6. demonstrate that you have the ability to undertake appropriate further training;
7. manage resources and time.
8. demonstrate competency in using laboratory skills in a safe and responsible manner.

Teaching and Learning Methods

You will be helped to acquire these skills through aspects of the formal teaching programme. In the early part of the programme this will mainly be through tutorial and coursework, whilst in Part 3 your project work will give you ample opportunity to further develop and practice many of the individual skills in one major activity.

Assessment methods

Your subject specific skills will be assessed as described above. Experimental and research skills are assessed through an appropriate combination of laboratory reports, project reports and presentations.

Programme Structure

The programme structure table is below:

The BSc Biochemistry programme is offered as a full-time course and normally lasts for three years. The programme is delivered in a semester pattern, each semester having 12 weeks for teaching and learning and 2-3 weeks for examinations (if required).

The programme is divided into individual study modules. Each study module is worth 7.5 ECTS or 15 ECTS, 7.5 ECTS is the equivalent to approximately 150 hours of study. During each semester of full time study you will take modules worth 30 ECTS.

Where optional modules have been specified, the following is an indicative list of available optional modules, which are subject to change each academic year. Please note in some instances modules have limited spaces available. Information about pre and co-requisites is included in individual module profiles.

Part I

Compulsory

BIOL1024	Fundamentals of Biochemistry	15 ECTS	Compulsory
Biol1025	Fundamentals of Cell Biology & Physiology	15 ECTS	Compulsory
Biol1026	Chemistry of Life	15 ECTS	Compulsory
Biol1027	The Human Genome and Disease	7.5 ECTS	Compulsory
BIOL1030	How to Think Like a Scientist	7.5 ECTS	Compulsory

Part II

Core

Biol2010	Flow of Genetic Information	7.5 ECTS	Core
Biol2013	Bioinformatics	7.5 ECTS	Core
Biol2012	Exploring Proteins	7.5 ECTS	Core

OPTIONAL – please choose 37.5 ECTS

BIOL2052	Neuroscience	15 ECTS	Optional
Or			
Biol2051*	Principles of Neuroscience	7.5 ECTS	Optional
BIOL2049	Pharmacology	15 ECTS	Optional

Or

BIOL2048*	Principles of Pharmacology	7.5 ECTS	Optional
BIOL2045	Vertebrate Development	7.5 ECTS	Optional
BIOL2044	Medical Microbiology	7.5 ECTS	Optional
BIOL2053	Environmental Biochemistry	7.5 ECTS	Optional

* Students taking 15 ECTS module are expected to choose their modules at the start of the AY as per normal. Should a student choose to not pursue the 15 ECTS module in semester 2, then they will be awarded the mark obtained at the end of semester 1 for the equivalent 7.5 ECTS module and be expected to choose another 7.5 ECTS module by the end of the 2nd week of semester 2.

Further options within and outside of the School of Biological Sciences are available. A maximum of TWO elective modules can be selected from a range of suitable courses from Schools other than Biological Sciences, but no more than one UOSM should be taken. Examples include Engineering Replacement Body Parts (UOSM2031) and Global Health (UOSM2004). We strongly encourage you to discuss electives with your tutor before pursuing such options.

It is also possible to “audit” a single second year module. This means that students attend the lectures to learn the content and have access to the module Blackboard site, but they do not have to take any of the assessments. An audited module then means that further options are open to that student during the third year, and this audited module will also appear on your final degree transcript.

Part III

Core

BIOL3014	Molecular Cell Biology	7.5 ECTS	Core
BIOL3013	Molecular Recognition	7.5 ECTS	Core
BIOL3017	The Molecular and Structural Basis of Disease	7.5 ECTS	Core

Optional Core (choose 1)

BIOL3034 or	Laboratory research project	15 ECTS	Optional Core
BIOL3058 or	Bioscience Business	15 ECTS	Optional Core
BIOL3059 or	Bioscience Education	15 ECTS	Optional Core
BIOL3069	In-silico research project	15 ECTS	Optional Core

OR two from the following so that you have 15 ECTS of independent project work:

BIOL3060	Science Communication	7.5 ECTS	Optional Core
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BIOL3066	Extended Science Communication (to be taken with BIOL3060)	7.5 ECTS	Optional Core
BIOL3031/32	Literature project	7.5 ECTS	Optional Core
BIOL3073	Bioethics Project	7.5 ECTS	Optional Core

Three further modules are chosen from the following, with at least one of them being chosen from those marked with **:

BIOL3001	Current topics in Cell Biology	7.5 ECTS	Optional
BIOL3015**	Regulation of Gene Expression	7.5 ECTS	Optional
BIOL3021**	Cellular and Molecular Neuroscience	7.5 ECTS	Optional
BIOL3025	Neuropharmacology of CNS Disorders	7.5 ECTS	Optional
BIOL3026**	Selective Toxicity	7.5 ECTS	Optional
BIOL3037	Immunology	7.5 ECTS	Optional
BIOL3043	Cellular and Molecular Pathology	7.5 ECTS	Optional
BIOL3063**	Bioinformatics and System Biology	7.5 ECTS	Optional
BIOL3064**	Cancer and Chromosome Biology	7.5 ECTS	Optional
BIOL3067	Evolution and Development	7.5 ECTS	Optional
BIOL3006	Cellular and Genetic Aspects of Animal Development	7.5 ECTS	Optional
BIOL3018**	Molecular Pharmacology	7.5 ECTS	Optional
BIOL3020	Systems Neuroscience	7.5 ECTS	Optional
BIOL3022**	Cell Signalling in Health and Disease	7.5 ECTS	Optional
BIOL3044	Maternal, Fetal and Neonatal Physiology	7.5 ECTS	Optional
BIOL3048	Neurodegenerative Disease	7.5 ECTS	Optional
BIOL3052**	Biomedical Technology	7.5 ECTS	Optional
BIOL3057	Biofilms and Microbial Communities	7.5 ECTS	Optional
BIOL3065	Biomedical Parasitology	7.5 ECTS	Optional

*Further options within and outside of the School of Biological Sciences are available. A maximum of one elective module can be selected from a range of suitable courses from Schools other than Biological Sciences, but no more than one UOSM should be taken. We strongly encourage you to discuss electives with your tutor before pursuing such options.

Typical course content

Biochemistry is the study of life at the molecular level. During a BSc in Biochemistry you will study the structure and function of cells, organisms and biological processes. The programme is taught in a research led environment by academics actively engaged in research into the molecular basis of disease, genetics, oncology, structural biology, plant biochemistry, biological systems biochemistry, DNA recognition and cell signalling.

In Part 1, there are a number of compulsory modules, which lay a solid foundation in the basic discipline of this programme. Part 1 is common with both the Biomedical, Neuroscience and Pharmacology programmes and thus offers the flexibility to change degree programme at the end of Part I. A compulsory module is one that you must take (but need not pass) whilst a core module is one that you must take and pass to progress to the next level of study. More specialised training and options that enable diversification commence in Part 2. There is also an opportunity in Parts 2 and 3 to take modules from the University's Curriculum Innovation Programme (CIP).

In Part 3 the students are exposed to the forefronts of the discipline's knowledge, with the opportunity to conduct supervised original research.

Progression Requirements

The programme follows the University's regulations for [*Progression, Determination and Classification of Results : Undergraduate and Integrated Masters Programmes*](#) Any exemptions or variations to the University regulations, approved by AQSC are located in [section VI of the University Calendar](#).

Intermediate exit points (where available)

You will be eligible for an interim exit award if you complete part of the programme but not all of it, as follows:

Qualification	FHEQ level	Minimum overall credit in ECTS credits	Minimum ECTS credits required at level of award
Ordinary degree	6	at least 150	30
Diploma of Higher Education	5	at least 120	45
Certificate of Higher Education	4	at least 60	45

Learning outcomes specific to each intermediate exit point correspond to a sub-set of those for the programme as a whole and may be determined by consulting the module map at the end of this document.

Support for student learning

There are facilities and services to support your learning some of which are accessible to students across the University and some of which will be geared more particularly to students in your particular School or discipline area.

The University provides:

- library resources, including e-books, on-line journals and databases, which are comprehensive and up-to-date; together with assistance from Library staff to enable you to make the best use of these resources
- high speed access to online electronic learning resources on the Internet from dedicated PC Workstations onsite and from your own devices; laptops, smartphones and tablet PCs via the Eduroam wireless network. There is a wide range of application software available from the Student Public Workstations.

- computer accounts which will connect you to a number of learning technologies for example, the Blackboard virtual learning environment (which facilitates online learning and access to specific learning resources)
- standard ICT tools such as Email, secure filestore and calendars.
- access to key information through the MySouthampton Student Mobile Portal which delivers timetables, Module information, Locations, Tutor details, Library account, bus timetables etc. while you are on the move.
- IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library.
- Enabling Services offering support services and resources via a triage model to access crisis management, mental health support and counselling. Support includes daily Drop In at Highfield campus at 13.00 – 15.00 (Monday, Wednesday and Friday out of term-time) or via on-line chat on weekdays from 14.00 – 16.00. Arrangements can also be made for meetings via Skype.
- assessment and support (including specialist IT support) facilities if you have a disability, long term health problem or Specific Learning Difficulty (e.g. dyslexia)
- the Student Services Centre (SSC) to assist you with a range of general enquiries including financial matters, accommodation, exams, graduation, student visas, ID cards
- Careers and Employability services, advising on job search, applications, interviews, paid work, volunteering and internship opportunities and getting the most out of your extra-curricular activities alongside your degree programme when writing your CV
- Other support that includes health services (GPs), chaplaincy (for all faiths) and 'out of hours' support for students in Halls and in the local community (18.00-08.00)
- A [Centre for Language Study](#), providing assistance in the development of English language and study skills for non-native speakers.

The Students' Union provides

- an academic student representation system, consisting of Course Representatives, Academic Presidents, Faculty Officers and the Vice-President Education; SUSU provides training and support for all these representatives, whose role is to represent students' views to the University.
- opportunities for extracurricular activities and volunteering
- an Advice Centre offering free and confidential advice including support if you need to make an academic appeal
- Support for student peer-to-peer groups, such as [Nightline](#).

Associated with your programme you will be able to access:

- An induction programme at the start of the course, which will provide orientation, information on modules, courses, library and computer facilities.
- Handbooks, module handbooks and material on the web.
- Library and academic skill packages.
- Well-equipped laboratories.
- Academic and pastoral support from members of staff, including your personal tutor which will include scheduled meetings at appropriate occasions during the academic year.
- Access to all administrative and academic material on the Biological Sciences, Programme and individual module web sites and/or Blackboard (<http://www.blackboard.soton.ac.uk>).
- Access to all academic staff through an appointment system and e-mail.
- Access to administrative staff in the Faculty Student Offices during the normal working day.
- Feedback on assessment.

Methods for evaluating the quality of teaching and learning

You will have the opportunity to have your say on the quality of the programme in the following ways:

- Completing student evaluation questionnaires for each module of the programme.
- Acting as a student representative on various committees, e.g. Staff/Student Liaison Committees, School Programmes Committee OR providing comments to your student representative to feed back on your behalf.
- Serving as a student representative on Faculty Scrutiny Groups for programme validation.

- Taking part in programme validation meetings by joining a panel of students to meet with the Faculty Scrutiny Group.

Further details on the University's quality assurance processes are given in the [Quality Handbook](#).

Career Opportunities

With a BSc Biochemistry degree you could be expected to find work in the following areas:

- Biotechnology and pharmaceutical industry
- Postgraduate research training
- Scientific officer in medical laboratories
- Teaching
- Forensic science
- Legal profession
- Business management
- Graduate entry Medicine

External Examiner(s) for the programme

Name	Prof. Ulrike Mayer
Institution.	University of East Anglia

Name	Prof. Gavin Woodhall
Institution.	Aston University

Students must not contact External Examiner(s) directly, and external examiners have been advised to refer any such communications back to the University. Students should raise any general queries about the assessment and examination process for the programme with their Course Representative, for consideration through Staff/Student Liaison Committee in the first instance, and Student representatives on Staff/Student Liaison Committees will have the opportunity to consider external examiners' reports as part of the University's quality assurance process.

External examiners do not have a direct role in determining results for individual students, and students wishing to discuss their own performance in assessment should contact their Personal Academic Tutor in the first instance.

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they takes full advantage of the learning opportunities that are provided. More detailed information can be found in the programme handbook.

Appendix 1:

Additional Costs

Students are responsible for meeting the cost of essential textbooks, and of producing such essays, assignments, laboratory reports and dissertations as are required to fulfil the academic requirements for each programme of study. In addition to this, students registered for this programme also have to pay for:

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
Approved Calculators		<i>Suggested generic statement:</i> Candidates may use calculators in the examination room only as specified by the University and as permitted by the rubric of individual examination papers. The University approved models are Casio FX-570 and Casio FX-85GT Plus. These may be purchased from any source and no longer need to carry the University logo.
Stationery		<i>Suggested generic statements:</i> You will be expected to provide your own day-to-day stationery items, e.g. pens, pencils, notebooks, etc). Any specialist stationery items will be specified under the Additional Costs tab of the relevant module profile.
Textbooks		<p><i>Suggested generic statement:</i> Where a module specifies core texts these should generally be available on the reserve list in the library. However due to demand, students may prefer to buy their own copies. These can be purchased from any source.</p> <p>Some modules suggest reading texts as optional background reading. The library may hold copies of such texts, or alternatively you may wish to purchase your own copies. Although not essential reading, you may benefit from the additional reading materials for the module.</p>
Equipment and Materials Equipment	Laboratory Equipment and Materials:	All materials required for laboratory work are provided. Where necessary, suitable specialist safety equipment will be provided.
IT	Computer Discs and USB Drives	Students are expected to provide their own portable data storage device.
	Software Licenses	All software is provided
	Hardware	It is advisable that students provide their own laptop or personal computer, although shared facilities are available across the University campus.
Clothing	Lab Coats and safety spectacles	One laboratory coat and a pair of safety spectacles are provided at the start of the programme to each student. If these are lost the student must replace them at their own expense. The Students Union Shop stock these items.
Printing and Photocopying Costs		<p>Coursework such as essays; projects; dissertations may be submitted on line. In the majority of cases, though, students will be asked to provide a printed copy. The School of Biological Sciences typically offers each student a printing credit per semester. The University printing costs are currently:</p> <p>A4 - 4p per side (black and white) or 18p per side (colour) A3 - 8p per side (black and white) or 35p per side (colour)</p>

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
		<p>Please Note: Paper sizes not recognised by the printing devices will prompt you to select the size and then charge a minimum of 50p per black and white copy and a maximum of £1 per colour copy.</p> <p>You can pay for your printing by using the money loaders or by using print copy payment service by going to www.printcopypayments.soton.ac.uk</p> <p>Please remember that we are unable to refund any credit that has not been used by the end of your course, so please consider this when topping up your printing/copy account</p> <p>The University Print Centre also offers a printing and copying service as well as a dissertation/binding service. Current printing and copying costs can be found here. They also provide a large format printing service, e.g. Academic posters. Details of current costs can be found here.</p>
Placements (including Study Abroad Programmes)		<p>Students who choose to go on an industrial placement at the end of Part 2 can expect to cover costs for health and travel insurance, accommodation and living expenses; travel costs; visa costs.</p> <p>This will vary depending on which country you are travelling to.</p>
Parking Costs		<p>There may be a requirement to undertake work at Southampton General Hospital (SGH), for example during a final year research project. Students may need to cover costs for transport to travel to SGH or for car parking.</p>

In some cases you'll be able to choose modules (which may have different costs associated with that module) which will change the overall cost of a programme to you. Details of such costs will be listed in the Module Profile. Please also ensure you read the section on additional costs in the University's Fees, Charges and Expenses Regulations in [Section IV of the University Calendar](#).

Appendix 2:

Modules required for interim exit qualifications

Modules required for: Certificate of Higher Education

Part 1: All Compulsory (60 ECTS)

Compulsory

BIOL1024	Fundamentals of Biochemistry	15 ECTS	Compulsory
Biol1025	Fundamentals of Physiology	15 ECTS	Compulsory
Biol1026	Chemistry of Life	15 ECTS	Compulsory
Biol1027	The Human Genome and Disease	7.5 ECTS	Compulsory
Biol1030	How to Think Like a Scientist	7.5 ECTS	Compulsory

Modules required for: Diploma of Higher Education

Core

Biol2010	Flow of Genetic Information	7.5 ECTS	Core
Biol2013	Bioinformatics	7.5 ECTS	Core
Biol2012	Exploring Proteins	7.5 ECTS	Core

Optional

BIOL2052	Neuroscience	15 ECTS	Optional
Or			
Biol2051	Principles Neuroscience	7.5 ECTS	Optional
BIOL2049	Pharmacology	15 ECTS	Optional
Or			
BIOL2048	Principles of Pharmacology	7.5 ECTS	Optional
BIOL2056	Cell Biology	7.5 ECTS	Optional
BIOL2045	Vertebrate Development	7.5 ECTS	Optional

BIOL2042	Biological Sciences Study Abroad	30 ECTS	Optional
BIOL2044	Medical Microbiology	7.5 ECTS	Optional
BIOL2053	Environmental Biochemistry	7.5 ECTS	Optional

Qualification obtained: Ordinary Degree

Part 3: Core + a further 37.5 ECTS from other approved modules (including optional modules listed below)

Core

BIOL3014	Molecular Cell Biology	7.5 ECTS	Core
BIOL3013	Molecular Recognition	7.5 ECTS	Core
BIOL3017	The Molecular and Structural Basis of Disease	7.5 ECTS	Core

Optional Core

BIOL3034 or	Laboratory research project	15 ECTS	Optional Core
BIOL3058 or	Bioscience Business	15 ECTS	Optional Core
BIOL3059 or	Bioscience Education	15 ECTS	Optional Core
BIOL3069 or	In-silico research project	15 ECTS	Optional Core

Or two from the following:

BIOL3060	Science Communication	7.5 ECTS	Optional Core
BIOL3066	Extended Science Communication (to be taken with BIOL3060)	7.5 ECTS	Optional Core
BIOL3031/32	Literature project	7.5 ECTS	Optional Core
BIOL3073	Bioethics Project	7.5 ECTS	Optional Core

Three further modules are chosen from the following, with at least one of them being chosen from those marked with **:

BIOL3001	Current topics in Cell Biology	7.5 ECTS	Optional
BIOL3015**	Regulation of Gene Expression	7.5 ECTS	Optional
BIOL3021**	Cellular and Molecular Neuroscience	7.5 ECTS	Optional
BIOL3025	Neuropharmacology of CNS Disorders	7.5 ECTS	Optional

BIOL3026**	Selective Toxicity	7.5 ECTS	Optional
BIOL3037	Immunology	7.5 ECTS	Optional
BIOL3043	Cellular and Molecular Pathology	7.5 ECTS	Optional
BIOL3063**	Bioinformatics and System Biology	7.5 ECTS	Optional
BIOL3064**	Cancer and Chromosome Biology	7.5 ECTS	Optional
BIOL3067	Evolution and Development	7.5 ECTS	Optional
BIOL3006	Cellular and Genetic Aspects of Animal Development	7.5 ECTS	Optional
BIOL3018**	Molecular Pharmacology	7.5 ECTS	Optional
BIOL3020	Systems Neuroscience	7.5 ECTS	Optional
BIOL3022**	Cell Signalling in Health and Disease	7.5 ECTS	Optional
BIOL3044	Maternal, Fetal and Neonatal Physiology	7.5 ECTS	Optional
BIOL3048	Neurodegenerative Disease	7.5 ECTS	Optional
BIOL3052**	Biomedical Technology	7.5 ECTS	Optional
BIOL3057	Biofilms and Microbial Communities	7.5 ECTS	Optional
BIOL3065	Biomedical Parasitology	7.5 ECTS	Optional

Programme Specification Learning Outcomes	BIOL1024 Fundamentals of Biochemistry	BIOL1025 Fundamentals of Cell Biology and Physiology	BIOL1026 Chemistry of Life	BIOL1027 The Human Genome and Disease	BIOL1030 How to Think Like a scientist	BIOL2010 Flow of genetic information	BIOL2013 Bioinformatics/Omics	BIOL2012 Exploring proteins	BIOL3013 Molecular Recognition	BIOL3014 Molecular cell biology	BIOL3017 Molecular & Structural basis of disease	BIOL3034 Laboratory Research Project	BIOL3058 Bioscience Business	BIOL3069 In-silico Research Project	BIOL3059 Bioscience Education	Or two from:			
																BIOL3060 Science Communication	BIOL3066 Extended Science Communication	BIOL3031/32 Literature Based Research Project	BIOL3073 Bioethics Project
A5. the techniques used to study biological macromolecules;	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	
A6. how biotechnology is used in research and medicine;				X	X	X			X	X	X	X		X					X
A7. the composition and spatial organisation of the cell, including cell division;	X	X								X									
A8. how cells communicate with each other;	X	X				X		X	X	X									
A9. the basis of homeostasis and other key physiological processes;	X	X																	
A10. how cells become specialised, form tissues and functions within the major organs		X									X								

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Subject Specific Intellectual and Research Skills																			
B1. formulate and test hypotheses by planning, conducting and reporting a programme of biochemical research in the form of a project, either directly (from your own lab work or data mining), or indirectly through analysis of the work of others;					X							X	X	X				X	X
B2. use a range of biochemical laboratory equipment to generate data;	X	X				X						X		X					
B3. use computer software to record and/or analyse biochemical data and determine their importance and validity;							X	X				X		X					

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B4. analyse and solve complex biochemical problems;					X		X					X		X					
B5. integrate your biochemistry knowledge base with other selected disciplines such as physiology, biology, pharmacology or chemistry;			X		X		X		X	X	X	X	X	X	X	X	X	X	X
B6. integrate and evaluate biochemical data from a variety of sources, including primary source material in journals;					X				X	X	X	X	X	X	X	X	X	X	X
B7. understand how the boundaries of biochemical knowledge are advanced through research;				X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
B8. Identify ethical issues in biochemistry research.					X							X	X	X	X	X	X	X	X

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Transferable and generic skills																			
C1. communicate/present effectively both verbally and in writing to both specialised and non-specialised audiences;	x			x	x	x	x	x	x	x	x	x							
C2. work as a member of a team;	x	x			x	x							x		x				
C3. use information technology and other resources to find, extract and synthesise information;	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x
C4. solve problems relating to quantitative information;	x					x	x	x				x							
C5. learn independently with critical analysis;					x		x	x	x	x	x	x	x	x	x	x	x	x	x
C6. demonstrate that you have the ability to undertake appropriate further training;																			

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C7. manage resources and time.	X					X	X	X				X	X	X	X	X	X	X	X
C8. demonstrate competency in using laboratory skills in a safe and responsible manner	X	X				X						X							