

Programme Specification

BSc (Hons) Pharmacology (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 full-time student
Accreditation details	None
Final award	Bachelor of Science (Honours)
Name of award	Pharmacology
Interim Exit awards	Bachelor of Science (Ordinary) Diploma of Higher Education Certificate of Higher Education
FHEQ level of final award	Level 6
UCAS code	B210
Programme code	8577
QAA Subject Benchmark or other external reference	QAA Benchmark Statements for Biomedical Science 2019; British Pharmacological Society Core Curriculum
Programme Lead	Dr Katrin Deinhardt
Date specification was written	February 2020

Programme Overview

Brief outline of the programme

Pharmacology is the study of how drugs interact with receptors, cells, tissues and whole animals and based on a good understanding of basic physiology and biochemistry. Graduates in pharmacology are in considerable demand in a variety of areas of employment. In Southampton you will undertake a balanced programme where you will gain the relevant skills and knowledge required for a career in this subject area.

You will be taught through a combination of lectures, tutorials, practical classes, coursework and projects. In Part 3 you have the possibility to undertake an independent laboratory project, literature project or select from a range of modules studying the biosciences in business, education and communication.

Throughout the programme you will undertake independent reading both to supplement and consolidate the taught material and to broaden your knowledge and understanding of pharmacology.

Learning and teaching

Eight modules are taken each academic year, four in semester one and four in semester two. 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 pharmacology. These skills will be consolidated in Part 3, where they will be employed as part of extended

independent project. Embedded within these modules are opportunities to develop your transferable and generic skills.

Assessment

Your knowledge and understanding will be assessed by a combination of continuous assessment and written/ computer-based exams. Continuous assessment is based on your performance in tutorials, workshops, practicals and projects, and includes formative and summative components. Written examinations are held in the two weeks after each semester, in January and June. While marks for the first Part do not count towards the final degree classification, you do have to gain an overall pass in Part 1. Part 2 counts one third towards the final degree classification while Part 3 counts two thirds.

Special Features of the programme

The BSc in Pharmacology provides a flexible programme with which to pursue your interest in Pharmacology to the frontiers of our knowledge in this discipline. Parts 1 and 2 provide you with a solid foundation in pharmacology 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 from within Biological Sciences, including the opportunity to conduct an original research project. 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 pharmacology.

Alongside core pharmacology modules, we offer a broad range of modules in the wider area of biomolecular 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 to maintain a broader portfolio of skills and experience, should you so wish.

In the second semester of Part 2, our highest achieving students are invited to consider going overseas on a “study abroad” module, giving them the opportunity to study at partner universities in overseas. While abroad, you must undertake modules which give you an equivalent learning experience in pharmacology 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.

Our Part 3 laboratory and in silico research projects enable you to participate in cutting-edge research, giving you the ability to perform independent experiments or data analysis as part of a wider research programme. We also offer alternative 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:

1. a stimulating, informed environment through a wide range of interesting and contemporary courses with flexibility and choice, but allowing you to focus increasingly as you progress from part to part;

2. a sound scientific knowledge base in pharmacology to FHEQ level 6, (which is more focussed in Parts 2 and 3 of the programme) and in biochemistry and physiology to at least FHEQ Level 5 (i.e. Parts 1 and 2 of the programme) enabling you to describe and comment on specific aspects of current research in pharmacology;
3. an appreciation of the limits of knowledge of pharmacological processes;
4. training in pharmacological laboratory skills;
5. an opportunity to develop a range of transferable skills (information and communication technology, 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 pharmacologically-related topic;
8. an education and training suitable for a wide variety of careers and that will prepare you for higher degrees and careers in pharmacological and biochemical research – or graduate entry to medicine;
9. the capability of life-long learning, study and enquiry.

This programme provides opportunities for you to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.

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 pharmacology, as detailed in the learning outcomes (LOs) for the core and compulsory modules for this programme
- Use a range of practical skills and techniques relevant to pharmacology, as detailed in the LOs 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 pharmacology
- Conduct research into an area of science relevant to pharmacology
- 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 other learning outcomes. These allow you to demonstrate 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 pharmacology, and comprehensive knowledge and systematic understanding of:

- A1. the structure and function of biologically important molecules, and how these interact;
- A2. how genetic information is stored, accessed and used in a cellular context;
- A3. the role of metabolic pathways in the production of energy and other components essential for cell life and growth;
- A4. the techniques used to study biological macromolecules;
- A5. how biotechnology is used in research and medicine;
- A6. the composition and spatial organisation of the cell, including cell division;
- A7. how cells communicate with each other;
- A8. the basis of homeostasis and other key physiological processes;
- A9. how cells become specialised, form tissues and functions within the major organs;
- A10. the basic mechanisms of drug action and their effects on: the nervous system, the neuromuscular junction, the heart and kidneys; including the treatment of pain;

- A11. pharmacokinetics and drug toxicity, including selective toxicity and the biochemical basis of antibiotic action;
- A12. molecular studies on receptor structure and function and quantitative analysis of drug-receptor interactions
- A13. neurotransmitter systems in the brain and their functional roles;
- A14. the biochemical basis of major CNS disorders and the use of drugs in treating them.

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 pharmacology and become familiar with the techniques that are employed in modern pharmacological 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 or communication. Embedded within these modules are opportunities to develop your transferable and generic skills.

Assessment methods

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

Subject Specific Intellectual and Research Skills

Having successfully completed this programme you will be able to:

- B1. formulate and test hypotheses by planning, conducting and reporting a programme of pharmacological 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;
- B2. use a range of pharmacological laboratory equipment to generate data;
- B3. use computer software to record and analyse experimental data and determine their importance and validity;
- B4. analyse and solve complex pharmacological problems;
- B5. integrate your pharmacological knowledge base with other selected disciplines such as biochemistry and physiology
- B6. integrate and evaluate pharmacological data from a variety of sources, including primary source material in pharmacologically-related journals;
- B7. understand how the boundaries of pharmacological knowledge are advanced through research;
- B8. Identify ethical issues in pharmacology 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). 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

Having successfully completed this programme you will be able to:

- C1. communicate/present effectively both verbally and in writing on a range of topics in pharmacology to both specialised and non-specialised audiences;
- C2. work as a member of a team;
- C3. use information technology and other resources to find, extract and synthesise information.

- C4. solve problems relating to qualitative and quantitative information;
- C5. learn independently in a spirit of critical enquiry;
- C6. demonstrate you have the ability to undertake appropriate further training;
- C7. manage resources and time;
- C8. demonstrate competency in using laboratory skills in a safe a 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 tutorials 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 skills will be assessed as described above, primarily through continuous assessment and through your Part 3 project. 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:

Information about pre and co-requisites is included in individual module profiles.

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.

It is also possible to “audit” a single Part 2 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.

BSc (Hons) Pharmacology

Part I

Compulsory

BIOL1024	Fundamentals of Biochemistry	15	Compulsory
BIOL1025	Fundamentals of Cell Biology and Physiology	15	Compulsory
BIOL1026	Chemistry of Life	15	Compulsory
BIOL1027	The Human Genome and Disease	7.5	Compulsory
Biol1030	How to Think Like a Scientist	7.5	Compulsory

Part II

Core

BIOL2049	Pharmacology	15	Core
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Compulsory

BIOL2010	Flow of Genetic Information	7.5	Compulsory
BIOL2012	Exploring Proteins	7.5	Compulsory

You **must** choose **one of the two** options below. BIOL2052 is highly recommended. Should a student who selected BIOL2052 choose not to pursue this module in S2, then they will be awarded the mark obtained at the end of S1 for the equivalent 7.5 ECTS module BIOL2051, and be expected to choose another 7.5 ECTS module by the end of the 2nd week of S2 following standard module change procedures.

BIOL2052	Neuroscience	15	Optional
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or

BIOL2051	Principles of Neuroscience	7.5	Optional
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You **must choose** a further 15 ECTS (if BIOL2052 was taken) or a further 22.5 ECTS (if BIOL2051 was taken) from the available options below.

Optional

BIOL2013	Bioinformatics/ Omics	7.5	Optional
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BIOL2056	Cell Biology	7.5	Optional
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BIOL2022	Immunology, Infection and Inflammation	7.5	Optional
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BIOL2044	Medical Microbiology	7.5	Optional
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BIOL2045	Vertebrate Development	7.5	Optional
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BIOL2053	Environmental Biochemistry	7.5	Optional
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Part III

Optional Core

BIOL3034	Research Project	15	Optional Core
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OR

BIOL3058	Bioscience Business	15	Optional Core
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OR

BIOL3059	Bioscience Education	15	Optional Core
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OR

BIOL3069	In Silico Research Project	15	Optional Core
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OR two of

BIOL3060	Science Communication	7.5	Optional Core
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BIOL3066	Extended Science Communication (to be taken with BIOL3060)	7.5	Optional Core
BIOL3031/32	Literature-based Research Project (only one literature project can be taken)	7.5	Optional Core
BIOL3073	Bioscience Ethics	7.5	Optional Core

Compulsory

BIOL3018	Molecular Pharmacology	7.5	Compulsory
BIOL3025	Neuropharmacology of CNS Disorders	7.5	Compulsory
BIOL3027	Selective Toxicity	7.5	Compulsory

You **must** choose **two** of the three options below.

BIOL3018	Molecular Pharmacology	7.5	Optional
BIOL3048	Neurodegenerative Diseases	7.5	Optional
BIOL3020	Systems Neuroscience	7.5	Optional

Optional

BIOL3014	Molecular Cell Biology	7.5	Optional
BIOL3021	Cellular and Molecular Neuroscience	7.5	Optional
BIOL3063	Bioinformatics and Systems Biology	7.5	Optional
BIOL3022	Cell Signalling in Health and Disease	7.5	Optional
BIOL3048	Neurodegenerative Disease	7.5	Optional
BIOL3052	Biomedical Technology	7.5	Optional
BIOL3057	Biofilms and Microbial Communities	7.5	Optional

Finally, you can take a single elective module (7.5 ECTS), from the list above or from a range of suitable modules provided by Biological Sciences (BIOL), other Schools or a UOSM. . We strongly encourage you to discuss your module choice with your tutor before pursuing such options.

Typical course content

Pharmacology is the science of how drugs work. Evaluating new generation antibiotics, solving the problems of drug toxicity, finding out how drugs can best be used in the treatment of disease in humans and animals – these are all challenges faced by pharmacologists in an age of higher demands for an improved quality of life.

Our pharmacology degree programme has a strong emphasis on the molecular aspects of how pharmacological agents work, with particular interests in neuroscience and neuropharmacology. Through core topics, you will be introduced to the major concepts and principles of pharmacology in Parts 1 and 2, and in Part 3 you will complete a research project in your area of choice.

As a leading pharmacology university our teaching staff are actively involved in pharmacological research into brain damage and recovery, developmental biology, oncology, the development of new antibiotics and the mechanisms underlying alcoholism.

In common with all students studying for degrees in biochemistry, neuroscience, pharmacology and biomedical sciences, you will take a common Part 1. This gives you the flexibility to change your programme of study at any time before the start of Part 2. 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 CBS, Programme and individual module websites 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

The BSc in Pharmacology prepares you for a range of different career opportunities, such as postgraduate level studies, research careers in pharmaceutical and biotechnology industries, as scientific officer in medical laboratories or in forensic science. In addition to research career pathways, the programme also provides a strong foundation for roles within teaching, management and legal professions.

External Examiner(s) for the programme

Name: Prof Gavin Woodhall

Institution: Aston University

Name: Dr Ulrike Mayer

Institution: University of East Anglia

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	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.
	Fieldcourse clothing:	You will need to wear suitable clothing when attending fieldcourses, e.g. waterproofs, walking boots. You can purchase these from any source.
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 University printing costs are currently:</p> <p>A4 - 5p per side (black and white) or 18p per side (colour) A3 - 8p per side (black and white) or 35p per side (colour)</p> <p>Please Note: Paper sizes not recognised by the printing devices will prompt you to select the size and then</p>

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
		<p>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.printcoppayments.soton.ac.uk 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 and year out in Employment)		<p>Students who choose to go on an industrial placement at the end of Part 2 or to spent a semester abroad 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](#).

BSc (Hons) Pharmacology

PART 1

Compulsory

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

PASS

Certificate of Higher Education

PART 2

Core

BIOL2049 Pharmacology

Compulsory

BIOL 2010 Flow of Genetic Information

BIOL 2012 Exploring Proteins

Plus

BIOL2051 Principles of Neuroscience

Or

BIOL2052 Neuroscience

Optional from within the Faculty include

BIOL2056 Cell Biology

BIOL 2012 Exploring Proteins: Structure and Function

BIOL 2013 Bioinformatics/ Omics

BIOL2044 Medical Microbiology

BIOL2045 Vertebrate Development

BIOL2053 Environmental Biochemistry

PASS

Diploma of Higher Education

PART 3

Compulsory

BIOL3018 Molecular Pharmacology

BIOL3025 Neuropharmacology of CNS disorders

BIOL3027 Selective Toxicity

Plus 15 ECTS worth of Project work:

BIOL3034 Laboratory Research Project

OR

BIOL3058 Bioscience Business

OR

BIOL3059 Bioscience Education

OR

BIOL3069 In Silico Research Project

OR two of

BIOL3031 Literature-based Research Project S1

BIOL3032 Literature-based Research Project S2

BIOL3060 Science Communication S1

BIOL3066 Extended Science Communication S2

BIOL3073 Bioscience Ethics S2

Optional from within the Faculty

BIOL3014 Molecular Cell Biology

BIOL3022 Cell Signalling in Health and Disease

BIOL3015 Regulation of Gene Expression

BIOL3017 Molecular and Structural Basis of Disease

BIOL3021 Cellular and Molecular Neuroscience

BIOL3048 Neurodegenerative Disease

BIOL3052 Biomedical Technology

BIOL3057 Biofilms and Microbial Communities

BIOL3063 Bioinformatics and Systems Biology

PASS

Conferment of Award/Graduation

BSc (Hons) Pharmacology

Programme Specification Learning Outcomes	BIOL1024 Fundamentals of Biochemistry	BIOL1025 Fundamentals of Cell Biology & Biochemistry	BIOL1026 Chemistry of Life	BIOL1027 The Human Genome and Disease	1030 How to Think Like a Scientist		BIOL2049 Pharmacology	BIOL2010 Flow of Genetic Information	BIOL2012 Exploring Proteins	BIOL2052 Neuroscience	BIOL2051 Principles of Neuroscience		BIOL3018 Molecular Pharmacology	BIOL3025 Neuropharmacology of the Nervous System	BIOL3027 Selective Toxicity	BIOL3034 Research Project	BIOL3058 Bioscience Business	BIOL3059 Bioscience Education	BIOL3069 In Silico Research Project	BIOL3031/2 Literature-based Research Project	BIOL3060 Science Communication	BIOL3066 Extended Science Communication	BIOL3073 Bioscience Ethics
Knowledge and Understanding	Part 1 - all						Part 2 - all			Part 2 - 1of2			Part 3 - all			Part 3 Project- 1of4 OR				Part 3 Project - 2of4			
A1. the structure and function of biologically important molecules, and how these interact	X		X				X	X	X	X	X		X	X	X								
A2. how genetic information is stored, accessed and used in a cellular context	X			X				X															
A3. the role of metabolic pathways in the production of energy and other components essential for cell life and growth	X	X					X																
A4. the techniques used to study biological macromolecules	X	X	X		X		X	X		X			X		X								
A5. how biotechnology is used in research	X	X	X	X			X						X		X								

Programme Specification Learning Outcomes	BIOL1024 Fundamentals of Biochemistry	BIOL1025 Fundamentals of Cell Biology & Tissues	BIOL1026 Chemistry of Life	BIOL1027 The Human Genome and Disease	1030 How to Think Like a Scientist		BIOL2049 Pharmacology	BIOL2010 Flow of Genetic Information	BIOL2012 Exploring Proteins	BIOL2052 Neuroscience	BIOL2051 Principles of Neuroscience		BIOL3018 Molecular Pharmacology	BIOL3025 Neuropharmacology of the Nervous System	BIOL3027 Selective Toxicity	BIOL3034 Research Project	BIOL3058 Bioscience Business	BIOL3059 Bioscience Education	BIOL3069 In Silico Research Project	BIOL3031/2 Literature-based Research Project	BIOL3060 Science Communication	BIOL3066 Extended Science Communication	BIOL3073 Bioscience Ethics
and medicine																							
A6. the composition and spatial organisation of the cell, including cell division	X	X																					
A7. how cells communicate with each other	X	X					X			X	X			X	X								
A8. the basis of homeostasis and other key physiological processes		X					X			X	X		X	X	X								
A9. how cells become specialised, form tissues and function within the major organs		X								X	X												
A10. the basic mechanisms of drug action and their effects on: the nervous system, the neuromuscular junction, the heart and kidneys; including the treatment of pain		X					X						X	X	X								

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A11. pharmacokinetics and drug toxicity, including selective toxicity and the biochemical basis of antibiotic action						X						X	X	X								
A12. molecular studies on receptor structure and function and quantitative analysis of drug-receptor interactions		X				X		X				X		X								
A13. neurotransmitter systems in the brain and their functional roles		X				X			X	X			X									
A14. the biochemical basis of major CNS disorders and the use of drugs in treating them						X			X	X			X									
Subject Specific Intellectual and Research Skills																						

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B1. formulate and test hypotheses by planning, conducting and reporting a programme of pharmacological research in the form of a project					X									X	X	X	X	X			X
B2. use a range of pharmacological laboratory equipment to generate data	X	X			X	X	X		X	X				X							
B3. use computer software to record and analyse experimental data and determine their importance and validity	X	X	X		X	X	X		X	X				X							
B4. analyse and solve complex pharmacological problems						X					X	X		X	X		X				
B5. integrate your pharmacological knowledge base with other selected disciplines such		X				X			X	X	X	X	X	X	X		X	X			

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as biochemistry and physiology																					
B6. integrate and evaluate pharmacological data from a variety of sources, including primary source material in pharmacologically-related journals						X					X	X	X	X	X		X	X			
B7. understand how the boundaries of pharmacological knowledge are advanced through research						X					X	X	X	X	X		X	X			
B8. Identify ethical issues in pharmacology research.					X									X	X	X	X	X	X	X	X
Transferable and Generic Skills																					
C1. communicate/ present effectively both verbally and in	X	X			X	X	X	X	X	X				X	X	X	X	X	X	X	X

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writing																					
C2. work as a member of a team	X	X	X		X	X	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	X	X	X
C4. solve problems relating to qualitative and quantitative information	X	X			X	X			X	X				X	X	X	X	X	X	X	X
C5. learn independently in a spirit of critical enquiry					X						X	X	X	X	X	X	X	X	X	X	X
C6. demonstrate you have the ability to undertake appropriate further training											X	X	X	X	X	X	X	X	X	X	X
C7. manage resources and time	X	X	X		X	X	X	X	X	X				X	X	X	X	X	X	X	X
C8. demonstrate competency in using laboratory	X	X	X		X	X	X		X	X				X							

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skills in a safe a responsible manner																							