

Programme Specification

MSci Biology 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 s/he takes 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	4 years following standard progression for a FT student
Accreditation details	N/A
Final award	Master of Science (Honours)]
Name of award	Biology
Interim Exit awards	Bachelor of Science (Ordinary) Diploma of Higher Education Certificate of Higher Education
FHEQ level of final award	7
UCAS code	C101
Programme code	8572
QAA Subject Benchmark or other external reference	QAA Subject Benchmark Statements for Bioscience (2019) QAA Framework for Higher Education Qualifications (FHEQ)
Programme Lead	Dr Judith Lock
Date specification was written	February 2020

Programme Overview

Brief outline of the programme

Biology is the study of living things at all levels – from molecules through to cells, micro-organisms, multi-cellular whole organisms, populations, species and ecosystems and right up to the global environment. As a biologist you will learn how to apply this knowledge to address the global challenges we face in health, environment, energy and food.

You will have the opportunity to apply this knowledge to address the global challenges we face in health, environment, energy and food.

You will undertake a range of modules, providing you with a grounding in the knowledge of 21st Century Biology in your first year. The course structure allows you to specialise, depending on your interests, as you progress to the final year.

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

A broad range of methods will be employed, including a combination of lectures, tutorials, laboratory practical classes, seminars, workshops, field exercises, field courses and research projects. In part 3 you will undertake an independent research project from the range of 15 ECTS and 7.5 ECTS projects on offer (a total of 15 ECTS of project work must be undertaken).

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

Assessment

Assessment of your knowledge base is through a combination of written examinations, assessed coursework in the form of laboratory and fieldwork practical reports, essays and project reports, and presentations.

Formative assessment via group work, presentations, practical work and group discussion.

Special Features of the programme

As a Biology student in the School of Biological Sciences, you will be able to select from a range of modules, reflecting the broad research interests of the academics across our department. This range and diversity of expertise is a strength of the University of Southampton.

In Part 1 you will undertake modules which will provide you with a foundational knowledge across the Biological Sciences, including development of practical skills. You will undertake practical sessions in our teaching laboratories in the Life Sciences building, and also undertake field exercises and attend a residential field trips.

In Part 2 you will be able to select optional modules, to begin to specialise in your knowledge, depending on your interests. There is the opportunity to carry out studies during semester 2 of year 2 at one of several partner universities outside of the UK (BIOL2042 Biological Sciences Study Abroad). Specific module choices available will be dependent on the university selected and further information should be obtained from the module coordinator.

In part 3 you will undertake an independent research project from the range of 15ECTS and 7.5ECTS projects on offer (a total of 15ECTS of project work must be undertaken).

In Part 4 you will undertake an extended independent research project. A total of 30ECTS of project work must be undertaken.

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:

1. Develop a knowledge and understanding of living organisms at several levels of biological organisation ranging from the molecular level, through to cells, whole organisms and ecosystems as well as viewing biology from an evolutionary perspective;
2. Provide knowledge and understanding of biological systems and processes in theory and through practical work;
3. To provide the opportunity for you to construct an individual programmes of study of Biology within a coherent framework, following a broad foundational knowledge of Biological Sciences;
4. Training and experience of relevant practical laboratory and field work skills;
5. Development of a range of transferable skills (information and communication technology, team working, written and oral communication, time management, planning, data collection, analysis and presentation), and the capacity to give a clear and accurate account of the subject;
6. To enable you to think critically and to show that you can pursue independent study;
7. To provide an education suitable for a wide variety of careers and to prepare you for higher degrees and careers in biological sciences research;
8. To provide the key skills that are transferable to other disciplines, so that you are capable of reaching your full potential, becoming an important member of society, including

careers in academic and/professional biological sciences fields and non-biological sciences professions, industry and commerce.

The main aims of the MSci Biology degree are to:

9. develop the advanced ability to formulate, design and implement a programme of research to address a specific question in biology using appropriate data analysis
10. develop skills required to undertake a research project producing results that have the potential to form part of a peer reviewed scientific publication
11. demonstrate the ability to assimilate, evaluate and present research results objectively
12. develop the ability to adapt and apply methodologies to the solution of biological questions
13. be familiar with a range of topics at the cutting edge of Biological Sciences research via seminars and other forms of scientific presentation.
14. Develop specialised skills applicable in academic or industrial contexts.

Programme Learning Outcomes

Knowledge and Understanding

Having successfully completed this programme you will be able to demonstrate knowledge and understanding of:

- A1. The explanation of biological phenomena at a variety of levels (from molecular to ecological systems) and explain the relationship of evolutionary theory to their area of study
- A2. The use of bioinformatics and statistical approaches in the analysis of large datasets
- A3. Chemistry and Physics, in depth and breadth to provide necessary knowledge of how the structure of biological macromolecules, including proteins and nucleic acids determines their biological properties
- A4. The impact on society of advances in the biosciences
- A5. The evolution of plants and their major developmental events
- A6. The structure and function of various types of cells in unicellular and multicellular organisms, the structure and function of cell membranes, cell differentiation
- A7. Critically appraise and evaluate research outcomes from your own work and that of others

Teaching and Learning Methods

Taught material will be delivered using lectures, tutorials, laboratory and field based practicals and projects. Further self-learning through additional reading and research is expected.

Assessment methods

Experimental and research skills are assessed through some or all of the following: laboratory reports, project reports and presentations, part 3 research project or dissertations. Analysis and problem solving skills are assessed through unseen written examinations, continual assessment, practical write-ups and computer-based exercises.

Subject Specific Intellectual and Research Skills

Having successfully completed this programme you will be able to:

- B1. Recognise and apply subject-specific theories, paradigms, concepts or principles
- B2. Access and evaluation bioscience information from a variety of sources and communicate the principles both orally and in writing in a way that is organised and logical, and recognises the limits of current hypotheses
- B3. Access biosciences databases and use appropriate selection criteria to mine, manipulate and interpret data
- B4. Plan, execute and present an independent piece of work, in which qualities such as time management, problem solving and independence are evident, as well as interpretation and critical awareness of the quality of evidence

- B5. Independently design and implement a programme of research to generate data aimed at answering specific scientific questions
- B6. Critically evaluate the data and methodology of current published research in biological science.

Teaching and Learning Methods

In addition to the methods described above, analysis and problem solving are further developed in tutorials and laboratory practicals. Practical and research skills are further developed through laboratory and field work, and research projects.

Assessment methods

Experimental and research skills are assessed through some or all of the following: laboratory reports, project reports and presentations, final year research project or dissertations. Analysis and problem solving skills are assessed through unseen written examinations, continual assessment, practical write-ups and computer-based exercises.

Transferable and Generic Skills

Having successfully completed this programme you will be able to:

- C1. Demonstrate strategies that enable you to update, maintain and enhance your knowledge of the biosciences
- C2. Communicate science to peers and non-scientists
- C3. Show that you can independently design and implement a programme of research to generate data aimed at answering specific scientific questions.

Teaching and Learning Methods

You will be helped to acquire these skills through all aspects of the formal teaching programme. In parts 1 and 2 this will mainly be through tutorial and coursework, whilst in part 3 your project work will enable you to further develop and practice many of the individual skills in one specific area of biology.

Assessment methods

Your skills will be assessed as described above. Most skills are assessed through examinations, continuous assessment and through your third year project or dissertations.

Subject Specific Practical Skills (optional)

Having successfully completed this programme you will be able to:

- D1. Experience and competence in a broad range of appropriate practical techniques and skills relevant to the biosciences, including data collection, analysis and interpretation of those data, and testing hypotheses and the ability to place the work in context and to suggest lines of further investigation
- D2. Record data accurately, and carry out statistical analyses of data
- D3. Demonstrate an awareness of professional standards, including Good Laboratory Practice for data collection, recording and interpretation.
- D4. An appreciation of ethical issues in relation to biological sciences practices
- D5. Apply appropriate practical methodologies to address scientific questions.

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.

MSci Biology

Part I

*You must take 7.5 ECTS credits of Chemistry, either Chemistry of Life (semester 1 only) if you have studied A level Chemistry or an equivalent, or otherwise Introduction to Chemistry.

Compulsory

Fundamentals of Biochemistry	BIOL1024	15 ECTS	Compulsory
Fundamentals of Cell Biology and Physiology	BIOL1025	15 ECTS	Compulsory
The Origins of Biodiversity	BIOL1029	15 ECTS	Compulsory
How to think like a Scientist	BIOL1030	7.5 ECTS	Compulsory
*Either, Introduction to Chemistry	CHEM1012	7.5 ECTS	Compulsory
Or, Chemistry of Life (Semester 1 only)	BIOL1028	7.5 ECTS	Compulsory

Part II

Compulsory

Evolution	BIOL2001	7.5 ECTS	Compulsory
Plant Development and Function	BIOL2007	7.5 ECTS	Compulsory
Quantitative Methods in Biological & Environmental Science	BIOL2008	7.5 ECTS	Compulsory

Optional (please choose 37.5 ECTS)

Pure and Applied Population Ecology	BIOL2004	7.5 ECTS	Optional
Flow of Genetic Information	BIOL2010	7.5 ECTS	Optional
Bioinformatics and DNA technology	BIOL2013	7.5 ECTS	Optional
Immunology, Infection and Inflammation	BIOL2022	7.5 ECTS	Optional
Microbiology – from the natural environment to disease	BIOL2038	7.5 ECTS	Optional
Animal Behaviour	BIOL2039	7.5 ECTS	Optional
Conservation Management Field Course	BIOL2041	7.5 ECTS	Optional
Animal Conservation	BIOL2047	7.5 ECTS	Optional
Principles of Pharmacology	BIOL2048	7.5 ECTS	Optional
Pharmacology	BIOL2049	15 ECTS	Optional
Cell Biology	BIOL2056	7.5 ECTS	Optional
Principles of Neuroscience	BIOL2051	7.5 ECTS	Optional
Neuroscience	BIOL2052	15 ECTS	Optional
Behaviour & Ecology Field Course	BIOL2055	7.5 ECTS	Optional
Freshwater Ecosystems	ENVS2033	7.5 ECTS	Optional
Environmental Impact Assessment	ENVS2066	7.5 ECTS	Optional
Water Pollution	ENVS2007	7.5 ECTS	Optional
Introduction to GIS	GEOG2010	7.5 ECTS	Optional
Remote sensing for Earth Observation	GEOG2007	7.5 ECTS	Optional
Global Climate Change	GEOG2032	7.5 ECTS	Optional
Phytoplankton and Primary Production	SOES2006	7.5 ECTS	Optional
Ecological Processes in the Marine Benthos	SOES2017	7.5 ECTS	Optional
Palaeobiology	SOES2032	7.5 ECTS	Optional

Part III

Optional Core (Once selected, this module becomes core and must be passed at the pass mark)

You must take 15 ECTS of independent study. Choose one of the following modules:

Laboratory research project	BIOL3034	15 ECTS	Optional/Core
Field research project	BIOL3061	15 ECTS	Optional/Core
In-silico research project	BIOL3069	15 ECTS	Optional/Core
External research project	BIOL3071	15 ECTS	Optional/Core

Optional (please choose 6)

Current Topics in Cell and Developmental Biology	BIOL3001	7.5 ECTS	Optional
Plant Cell Biology	BIOL3003	7.5 ECTS	Optional
Evolution and Genetics	BIOL3010	7.5 ECTS	Optional
Molecular Recognition	BIOL3013	7.5 ECTS	Optional
Molecular Cell Biology	BIOL3014	7.5 ECTS	Optional
Regulation of Gene Expression	BIOL3015	7.5 ECTS	Optional
The Molecular & Structural Basis of Disease	BIOL3017	7.5 ECTS	Optional
Molecular Pharmacology	BIOL3018	7.5 ECTS	Optional
Systems Neuroscience	BIOL3020	7.5 ECTS	Optional
Cellular & Molecular Neuroscience	BIOL3021	7.5 ECTS	Optional
Cell Signalling in Health and Disease	BIOL3022	7.5 ECTS	Optional
Neuropharmacology of CNS Disorders	BIOL3025	7.5 ECTS	Optional
Selective Toxicity	BIOL3027	7.5 ECTS	Optional
Immunology	BIOL3037	7.5 ECTS	Optional
Neurodegenerative Disease	BIOL3048	7.5 ECTS	Optional
Applied Plant Biology	BIOL3051	7.5 ECTS	Optional
Biomedical Technology	BIOL3052	7.5 ECTS	Optional
Biodiversity & Conservation	BIOL3053	7.5 ECTS	Optional
Biofilms & Microbial Communities	BIOL3057	7.5 ECTS	Optional
Biofilms & Systems Biology	BIOL3063	7.5 ECTS	Optional
Cancer and Chromosome Biology	BIOL3064	7.5 ECTS	Optional
Biomedical Parasitology	BIOL3065	7.5 ECTS	Optional
Evolution & Development	BIOL3067	7.5 ECTS	Optional
Fluxes, Cycles & Microbial Communities	BIOL3068	7.5 ECTS	Optional
Tropical Ecology Field Course	BIOL3070	7.5 ECTS	Optional
Global Challenges in Biology	BIOL3074	7.5 ECTS	Optional
Environmental Law & Management	ENVS3013	7.5 ECTS	Optional
The Sustainability Professional	ENVS3020	7.5 ECTS	Optional
Advanced GIS	GEOG3006	7.5 ECTS	Optional
Remote Sensing for Earth Observation	GEOG3032	7.5 ECTS	Optional
Adapting to Climate Change	GEOG3057	7.5 ECTS	Optional
Biogeography	GEOG3068	7.5 ECTS	Optional

Part IV

*****You must take 30 ECTS of independent research study. Choose either BIOL6013 or BIOL6069.**

Optional Core (Once selected, this module becomes core and must be passed at the pass mark)

***Either, Advanced Laboratory Research Project	BIOL6013	30 ECTS	Optional/Core
OR Advanced Field Research	BIOL6069	30 ECTS	Optional/Core

Optional (please choose 3)

Current Topics in Cell Biology	BIOL6021	7.5 ECTS	Optional
Molecular Pharmacology	BIOL6022	7.5 ECTS	Optional
Cell Signalling in Health and Disease	BIOL6023	7.5 ECTS	Optional
Selective Toxicity	BIOL6024	7.5 ECTS	Optional
Cellular & Genetic Aspects of Animal Development	BIOL6025	7.5 ECTS	Optional
Regulation of Gene Expression	BIOL6027	7.5 ECTS	Optional
Evolution & Genetics	BIOL6029	7.5 ECTS	Optional
Molecular Cell Biology	BIOL6030	7.5 ECTS	Optional
Molecular Recognition	BIOL6032	7.5 ECTS	Optional
The Molecular and Structural Basis of Disease	BIOL6033	7.5 ECTS	Optional
Systems Neuroscience	BIOL6034	7.5 ECTS	Optional
Cellular and Molecular Neuroscience	BIOL6035	7.5 ECTS	Optional
Neuropharmacology of CNS Disorders	BIOL6036	7.5 ECTS	Optional
Neurodegenerative Disease	BIOL6045	7.5 ECTS	Optional
Applied Plant Biology	BIOL6046	7.5 ECTS	Optional
Biofilms and Microbial Communities	BIOL6047	7.5 ECTS	Optional
Data Management and Generalised Linear Modelling for Biologists	BIOL6052	7.5 ECTS	Optional
Plant Cell Biology	BIOL6044	7.5 ECTS	Optional
Biodiversity & Conservation	BIOL6066	7.5 ECTS	Optional
Cancer & Chromosome Biology	BIOL6071	7.5 ECTS	Optional
Science Communication	BIOL6072	7.5 ECTS	Optional
Skills in Molecular Bioscience	BIOL6095	7.5 ECTS	Optional
Skills in Structural Biology	BIOL6093	7.5 ECTS	Optional
Skills in Optical Imaging	BIOL6097	7.5 ECTS	Optional
Skills in Molecular Bioscience	BIOL6095	7.5 ECTS	Optional
Global Challenges in Biology	BIOL6097	7.5 ECTS	Optional
GIS for Environmental Consultants	ENVS6032	7.5 ECTS	Optional

Typical course content

The programme of study is divided into modules. Each module is assigned a number of credit points (ECTS = European Credit Transfer Scheme) that relates to the hours of formal teaching plus the recommended time for private study (1 ECTS = 20 hours of total student effort). For each part, you will take certain compulsory modules and a selection of approved optional modules to give a minimum of 60 ECTS. A compulsory module is one that you must take (but need not pass, though a minimum of 25% is required for progression) to progress to the next level of study.

From Part II onwards, you may select your own choice of modules at each level to reflect your development of interests in Biology. The selection of modules is in consultation with your tutor and must conform to the degree programme regulations and undertaking prerequisite modules for more advanced part II and III modules.

Progression Requirements

The programme follows the University's regulations for **Progression, Determination and Classification of Results : Undergraduate and Integrated Masters Programmes** as set out in the University Calendar. <http://www.calendar.soton.ac.uk/sectionIV/sectIV-index.html>

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	Minimum overall credit in ECTS credits	Minimum ECTS Credits required at level of award
BSc Ordinary degree	at least 150	30
Diploma of Higher Education	at least 120	45
Certificate of Higher Education	at least 60	45

If you successfully complete Part 1 you may switch to the degree programme in Zoology.

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 Faculty 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.
- Programme handbooks, module handbooks and material on the web.
- Library and academic skill packages.
- Well-equipped teaching laboratories.
- Academic and pastoral support from members of staff, including your personal academic tutor, this support includes scheduled meetings at appropriate occasions during the academic year.
- Access to all administrative and academic material on the FELS Hub, available on 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.

The ways in which the quality of your programme is checked, both inside and outside the University, are:

- Regular module and programme reports which are monitored by the Faculty
- Programme validation, normally every five years.
- External examiners, who produce an annual report
- Professional body accreditation/inspection
- A national Research Assessment Exercise (our research activity contributes directly to the quality of your learning experience)
- Institutional Review by the Quality Assurance Agency

Additional information may be added by faculties in this section – for example if there are additional quality measures in place in respect of professional placements, programmes operated overseas, etc.

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

Career Opportunities

Students will gain an understanding across Biological Sciences, becoming more focussed and specialised throughout the three year programme, leading to a wide variety of potential careers. This includes: education, within academia (following relevant postgraduate qualifications) and schools; non-governmental organisations, such as charities; careers within agriculture; biological science industry positions; journals and science communication. For students who decide that they do not wish to pursue a career in Biology, they will find that their degree also provides

transferrable skills, such as project management and data handling, that are useful for a wide variety of professions.

External Examiner(s) for the programme

Name Prof Sebastian Shimmeld
Institution. University of Oxford

Name Prof Claire Grierson
Institution. University of Bristol

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 s/he 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		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		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		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. 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.
Equipment and Materials Equipment	Field Equipment and Materials:	A number of essential items will be provided to you e.g.: field notebook(s); hand lens. If items provided are lost replacements can be purchased from: However, you will need provide yourselves with a ruler; a pair of compasses; set squares; protractor; pencils (including coloured); eraser; calculator, penknife. These can be purchased from any source.
	Laboratory Equipment and Materials:	safety goggles; laboratory coat
	Computer Discs	Students are expected to provide their own portable data storage device.
	Software Licenses	All required 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.

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
	Lab Coats	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.
IT		
		<p>Coursework such as essays; projects; dissertations may have to be submitted electronically or in hard copy, ensure that you follow the guidelines in the module mini-guide.</p> <p>The School of Biological Sciences a printing credit for printing lecture handouts. 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>
	Accommodation:	<p>For <i>compulsory</i> residential fieldcourses accommodation and travel are normally provided though where necessary, you will be expected to cover the cost of getting to and from the departure point which may be an airport, a train station or a field station. You are usually expected to cover the costs of food and drink, although some courses may include meals.</p> <p>For <i>optional</i> fieldcourses, you may be asked to make a contribution to the travel and/or accommodation costs.</p> <p>Undergraduates are automatically covered under the University's travel insurance whilst on organised and supervised fieldcourses. Those travelling independently in connection with their programme can be included under the University's travel insurance upon application – there may be a cost attached to this.</p> <p>There are also opportunities to undertake fieldcourses with another organisation, e.g. Operation Wallacea. Where necessary students will need to arrange and pay for any vaccinations.</p> <p>Specific details on what additional costs there are detailed in the individual module profiles which can</p>

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
		be found under the modules tab of the programmes details of the relevant academic unit.
Clothing	Insurance	
	Travel costs	<p>Coursework such as essays; projects; dissertations may have to be submitted electronically or in hard copy, ensure that you follow the guidelines in the module mini-guide.</p> <p>The School of Biological Sciences a printing credit for printing lecture handouts. 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>
	Immunisation/vaccination costs	<p>For <i>compulsory</i> residential fieldcourses accommodation and travel are normally provided though where necessary, you will be expected to cover the cost of getting to and from the departure point which may be an airport, a train station or a field station. You are usually expected to cover the costs of food and drink, although some courses may include meals.</p> <p>For <i>optional</i> fieldcourses, you may be asked to make a contribution to the travel and/or accommodation costs.</p> <p>Undergraduates are automatically covered under the University's travel insurance whilst on organised and supervised fieldcourses. Those travelling independently in connection with their programme can be included under the University's travel insurance upon application – there may be a cost attached to this.</p> <p>There are also opportunities to undertake fieldcourses with another organisation, e.g. Operation Wallacea. Where necessary students will need to arrange and pay for any vaccinations.</p> <p>Specific details on what additional costs there are detailed in the individual module profiles which can be found under the modules tab of the programmes details of the relevant academic unit.</p> <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>

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
		This will vary depending on which country you are travelling to.
	Other:	<p>For <i>compulsory</i> residential fieldcourses accommodation and travel are normally provided though where necessary, you will be expected to cover the cost of getting to and from the departure point which may be an airport, a train station or a field station. You are usually expected to cover the costs of food and drink, although some courses may include meals.</p> <p>For <i>optional</i> fieldcourses, you may be asked to make a contribution to the travel and/or accommodation costs.</p> <p>Undergraduates are automatically covered under the University's travel insurance whilst on organised and supervised fieldcourses. Those travelling independently in connection with their programme can be included under the University's travel insurance upon application – there may be a cost attached to this.</p> <p>There are also opportunities to undertake fieldcourses with another organisation, e.g. Operation Wallacea. Where necessary students will need to arrange and pay for any vaccinations.</p> <p>Specific details on what additional costs there are detailed in the individual module profiles which can be found under the modules tab of the programmes details of the relevant academic unit.</p>
	Accommodation	
Printing and Photocopying Costs	Insurance	<p>Coursework such as essays; projects; dissertations may have to be submitted electronically or in hard copy, ensure that you follow the guidelines in the module mini-guide.</p> <p>The School of Biological Sciences a printing credit for printing lecture handouts. 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>
Fieldwork: logistical costs	Medical Insurance	For <i>compulsory</i> residential fieldcourses accommodation and travel are normally provided though where necessary, you will be expected to cover the cost of getting to and from the departure point which may be an airport, a train station or a
	Travel costs	
	Immunisation/vaccination costs	
	Disclosure and Barring Certificates or Clearance	

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
	Translation of birth certificates	<p>field station. You are usually expected to cover the costs of food and drink, although some courses may include meals.</p> <p>For <i>optional</i> fieldcourses, you may be asked to make a contribution to the travel and/or accommodation costs.</p> <p>Undergraduates are automatically covered under the University's travel insurance whilst on organised and supervised fieldcourses. Those travelling independently in connection with their programme can be included under the University's travel insurance upon application – there may be a cost attached to this.</p> <p>There are also opportunities to undertake fieldcourses with another organisation, e.g. Operation Wallacea. Where necessary students will need to arrange and pay for any vaccinations.</p> <p>Specific details on what additional costs there are detailed in the individual module profiles which can be found under the modules tab of the programmes details of the relevant academic unit.</p> <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> <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> <p>Some modules may include optional visits to a museum, galleries, etc. You will normally be expected to cover the cost of travel and admission, unless otherwise specified in the module profile.</p>
Placements (including Study Abroad Programmes)	Other	<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> <p>Some modules may include optional visits to a museum, galleries, etc. You will normally be</p>
	Accommodation	
	Travel	

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
		expected to cover the cost of travel and admission, unless otherwise specified in the module profile.
Conference expenses		
Optional Visits (e.g. museums, galleries)		
Professional Exams		
Parking Costs		
Anything else not covered elsewhere		

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 the University Calendar available at www.calendar.soton.ac.uk.

Appendix 2: Programme Learning Outcome Map

Programme Specification Learning Outcomes	BIOL1AAA Fundamentals of Biochemistry	BIOL1BBB Fundamentals of Cell Biology and Physiology	BIOL1XXX The Origins of Biodiversity	BIOL1020-2 How to think like a Scientist	CHEM1012 or BIOL1EEE Chemistry of Life (Semester 1 only)	BIOL2001 Evolution	BIOL2007 Plant Development and Function	BIOL2008 Quantitative Methods in Biological & Environmental Science	30 Credits of independent study*	BIOL6063 Current Research	60 credits of independent study**
Knowledge and Understanding											
1			X			X					
2				X		X		X			
3	X				X						
4			X			X			X		
5			X				X				
6		X					X				
7										X	X
Subject Specific Intellectual and Research Skills											
1	X	X	X			X	X	X	X		
2									X		
3						X	X	X	X		
4									X		
5											X
6										X	X
Transferable and Generic Skills											
1			X						X		
2				X					X		
3											X
Subject Specific											
1	X	X	X	X							
2				X		X		X			
3	X	X	X	X		X	X		X		
4				X					X		
5											X

* One of:

BIOL3034 Laboratory research project,
BIOL3058 Bioscience Business
BIOL3059 Bioscience Education
BIOL3061 Field research project
BIOL3069 In-silico research project
BIOL3071 External research project

** One of

BIOL6013 Advanced Laboratory Research Project
BIOL6069 Advanced Field Research Project

- A1. The explanation of biological phenomena at a variety of levels (from molecular to ecological systems) and explain the relationship of evolutionary theory to their area of study
- A2. The use of bioinformatics and statistical approaches in the analysis of large datasets
- A3. Chemistry and Physics, in depth and breadth to provide necessary knowledge of how the structure of biological macromolecules, including proteins and nucleic acids determines their biological properties
- A4. The impact on society of advances in the biosciences
- A5. The evolution of plants and their major developmental events
- A6. The structure and function of various types of cells in unicellular and multicellular organisms, the structure and function of cell membranes, cell differentiation
- A7. Critically appraise and evaluate research outcomes from your own work and that of others

- B1. Recognise and apply subject-specific theories, paradigms, concepts or principles
- B2. Access and evaluation bioscience information from a variety of sources and communicate the principles both orally and in writing in a way that is organised and optical, and recognises the limits of current hypotheses
- B3. Access biosciences databases and use appropriate selection criteria to mine, manipulate and interpret data
- B4. B3. Plan, execute and present an independent piece of work, in which qualities such as time management, problem solving and independence are evident, as well as interpretation and critical awareness of the quality of evidence
- B5. Independently design and implement a programme of research to generate data aimed at answering specific scientific questions
- B6. Critically evaluate the data and methodology of current published research in biological science

- C1 Demonstrate strategies that enable you to update, maintain and enhance your knowledge of the biosciences

- C2 Communicate science to peers and non-scientists

- C3 Show that you can independently design and implement a programme of research to generate data aimed at answering specific scientific questions

- D1. Experience and competence in a broad range of appropriate practical techniques and skills relevant to the biosciences, including data collection, analysis and interpretation of those data, and testing hypotheses and the ability to place the work in context and to suggest lines of further investigation
- D2. Record data accurately, and carry out statistical analyses of data

- D3. Demonstrate an awareness of professional standards, including Good Laboratory Practice for data collection, recording and interpretation.
- D4. An appreciation of ethical issues in relation to biological sciences practices
- D5. Apply appropriate practical methodologies to address scientific questions