Programme Specification

BSc (Hons) 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: 3 years following standard progression for a FT student
Accreditation details: N/A
Final award: Bachelor 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: 6
UCAS code: C100
Programme code: 8571
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

Programme Overview

Brief outline of the programme
Biology is the study of living things at all levels – from molecules through to cells, microorganisms, 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 will 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 15ECTS and 7.5ECTS projects on offer (a total of 15ECTS 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).

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.
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

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 optical, 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

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

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

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.

BSc (Hons) 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
<table>
<thead>
<tr>
<th>Module Description</th>
<th>Code</th>
<th>ECTS</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals of Biochemistry</td>
<td>BIOL1024</td>
<td>15</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Fundamentals of Cell Biology and Physiology</td>
<td>BIOL1025</td>
<td>15</td>
<td>Compulsory</td>
</tr>
<tr>
<td>The Origins of Biodiversity</td>
<td>BIOL1029</td>
<td>15</td>
<td>Compulsory</td>
</tr>
<tr>
<td>How to think like a Scientist</td>
<td>BIOL1030</td>
<td>7.5</td>
<td>Compulsory</td>
</tr>
<tr>
<td>*Either, Introduction to Chemistry</td>
<td>CHEM1012</td>
<td>7.5</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Or, Chemistry of Life (Semester 1 only)</td>
<td>BIOL1028</td>
<td>7.5</td>
<td>Compulsory</td>
</tr>
<tr>
<td>*Either, Introduction to Chemistry</td>
<td>CHEM1012</td>
<td>7.5</td>
<td>Compulsory</td>
</tr>
</tbody>
</table>
### 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 37.3 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**
  - ENVS2003 7.5 ECTS Optional
- **Environmental Impact Assessment**
  - ENVS2006 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.

**Either choose one of the following modules:**
- **Laboratory research project**
  - BIOL3034 15 ECTS Optional/Core
- **Bioscience Business**
  - BIOL3058 15 ECTS Optional/Core
- **Bioscience Education**
  - BIOL3059 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

**Or select two of the following 7.5 ECTS modules, one in each semester:**
- **Literature-based research project (semester 1)**
  - BIOL3031 7.5 ECTS Optional/Core
- **Literature-based research project (semester 2)**
  - BIOL3032 7.5 ECTS Optional/Core
- **Science communication (semester 1)**
  - BIOL3060 7.5 ECTS Optional/Core
- **Short field project (semester 1)**
  - BIOL3062 7.5 ECTS Optional/Core
- **Extended Science communication (semester 2)**
  - BIOL3066 7.5 ECTS Optional/Core
- **Bioethics Project (semester 2)**
  - BIOL3073 7.5 ECTS Optional/Core
In part 3, you cannot take both BIOL3031 and BIOL3032, they should be combined with a different independent study module. BIOL3060 is an essential prerequisite in order to take BIOL3066.

Optional (please choose 6)

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

A maximum of 2 modules can be taken from outside Biological Sciences within each part, and of these not more than one can be a UOSM coded module. Please see Programme Catalogue.

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 (1ECTS = 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 2 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 2 and 3 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](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:

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Minimum overall credit in ECTS credits</th>
<th>Minimum ECTS Credits required at level of award</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc Ordinary degree</td>
<td>at least 150</td>
<td>30</td>
</tr>
<tr>
<td>Diploma of Higher Education</td>
<td>at least 120</td>
<td>45</td>
</tr>
<tr>
<td>Certificate of Higher Education</td>
<td>at least 60</td>
<td>45</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Main Item</th>
<th>Sub-section</th>
<th>PROGRAMME SPECIFIC COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved Calculators</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Stationery</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Textbooks</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Equipment and Materials</td>
<td></td>
<td>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:</td>
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<tr>
<td>Field Equipment and</td>
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<td>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.</td>
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<tr>
<td>Materials:</td>
<td></td>
<td>Safety goggles; laboratory coat</td>
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<td>Laboratory Equipment</td>
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<td>Students are expected to provide their own portable data storage device.</td>
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<tr>
<td>and Materials:</td>
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<td>All required software is provided</td>
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<tr>
<td>Main Item</td>
<td>Sub-section</td>
<td>PROGRAMME SPECIFIC COSTS</td>
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<td><strong>Hardware</strong></td>
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<td>It is advisable that students provide their own laptop or personal computer, although shared facilities are available across the University campus.</td>
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<tr>
<td><strong>Clothing</strong></td>
<td>Lab Coats</td>
<td>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.</td>
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<td><strong>Fieldcourse clothing:</strong></td>
<td></td>
<td>You will need to wear suitable clothing when attending fieldcourses, e.g. waterproofs, walking boots. You can purchase these from any source.</td>
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<tr>
<td><strong>Printing and Photocopying Costs</strong></td>
<td></td>
<td>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. The School of Biological Sciences a printing credit for printing lecture handouts. The University printing costs are currently: A4 - 4p per side (black and white) or 18p per side (colour) A3 - 8p per side (black and white) or 35p per side (colour)</td>
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<tr>
<td><strong>Fieldwork: logistical costs</strong></td>
<td>Accommodation:</td>
<td>For <em>compulsory</em> 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. For <em>optional</em> fieldcourses, you may be asked to make a contribution to the travel and/or accommodation costs. 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. 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.</td>
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<td>Insurance</td>
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<td>Travel costs</td>
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<td>Immunisation/vaccination costs</td>
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<td>Other:</td>
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<td>Main Item</td>
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<td>PROGRAMME SPECIFIC COSTS</td>
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<tr>
<td>Placements (including Study Abroad Programs)</td>
<td>Accommodation</td>
<td>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.</td>
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<td></td>
<td>Insurance</td>
<td>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.</td>
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<td>Medical Insurance</td>
<td>This will vary depending on which country you are travelling to.</td>
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<td>Travel costs</td>
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<td>Immunisation/vaccination costs</td>
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<td>Disclosure and Barring Certificates or Clearance</td>
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<td>Translation of birth certificates</td>
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<td>Other</td>
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<td>Conference expenses</td>
<td>Accommodation</td>
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<td>Travel</td>
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<td>Optional Visits (e.g. museums, galleries)</td>
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<td>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.</td>
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<tr>
<td>Professional Exams</td>
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<tr>
<td>Parking Costs</td>
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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**

<table>
<thead>
<tr>
<th>Programme Specification Learning Outcomes</th>
<th>BIOL1AAA Fundamentals of Biochemistry</th>
<th>BIOL1BBB Fundamentals of Cell Biology and Physiology</th>
<th>BIOL1XXX The Origins of Biodiversity</th>
<th>CHEM1012 or BIOL1EEE Chemistry of Life (Semester 1 only)</th>
<th>BIOL201 Evolution</th>
<th>BIOL2007 Plant Development and Function</th>
<th>BIOL2008 Quantitative Methods in Biological &amp; Environmental Science</th>
<th>30 Credits of independent study*</th>
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<td>Knowledge and Understanding</td>
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<td>Subject Specific Intellectual and Research Skills</td>
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<td>Transferable and Generic Skills</td>
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* Either, 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

Or, two of:
  BIOL3031 Literature-based research project (semester 1)
  BIOL3032 Literature-based research project (semester 2)
  BIOL3060 Science communication (semester 1)
  BIOL3062 Short field project (semester 1)
  BIOL3066 Extended Science communication
  BIOL3073 Bioethics Project (semester 2)
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

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

C1 Demonstrate strategies that enable you to update, maintain and enhance your knowledge of the biosciences
C2 Communicate science to peers and non-scientists

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