Programme Specification

BSc Biology and Marine 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
Accreditation details	None
Final award	Bachelor of Science with Honours (BSc (Hons))
Name of award	BSc Biology and Marine Biology
Interim Exit awards	Bachelor of Science (Ordinary)
	Certificate of Higher Education (CertHE)
	Diploma of Higher Education (DipHE)
FHEQ level of final award	Level 6
UCAS code	7N15
Programme code	8165
QAA Subject Benchmark or other external reference	Earth Sciences, Environmental Sciences And Environmental Studies 2019
Programme Lead	Phillip Fenberg (SOES); Neil Gostling (BIOL)

Programme Overview

Brief outline of the programme

Our BSc Biology and Marine Biology programme combines modules from the Centre for Biological Sciences (CfBS) and from the School of Ocean and Earth Science (OES) (based at the National Oceanography Centre Southampton (NOCS)). In Southampton you will undertake a balanced (50:50 terrestrial and marine) programme where you will gain the relevant skills and knowledge for a career requiring a blend of terrestrial and marine biological expertise.

There has been a massive increase in the interest in marine and terrestrial biodiversity, ecology, and evolution. The exploitation of natural resources and the potential impact of climate and anthropogenic influences on biodiversity is a growing subject for research. Biology and marine biology students will expand their biology-knowledge base and develop their understanding of the living world from the molecular level to entire ecosystems across both terrestrial and marine biology.

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

You will be taught through a combination of lectures, tutorials, practical classes, coursework fieldwork and projects. In Part 3 you will undertake an independent research project. Field courses will happen in each of Parts 1, 2 and 3, culminating in the shallow water mapping field course in June of part 3.

In addition to the methods described in the section above you will be supervised in practical classes and during both your Part 3 project.

You will be helped to acquire generic and transferrable skills through aspects of the formal teaching programme. In the early parts this will mainly be through tutorial and coursework, whilst in Part 3, your project work will give you ample opportunity to further develop and practise many of the individual skills.

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

Assessment

There are written examinations at the end of each semester to test your knowledge and understanding of material presented in lectures, tutorials and workshops.

Practical and transferrable work/skills are continuously assessed primarily through written reports, laboratory reports, coursework exercises, project reports and presentations.

You are assessed by a combination of continuous assessment and written examinations at the end of each semester to test your knowledge and understanding of the lecture and tutorial material. Continuous assessment is based on performance in practical sessions, fieldwork and/or independent reading and synthesising.

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

Special Features of the programme

The blend of terrestrial and marine science within this programme provides a unique series of fieldwork/boatwork opportunities. For example, in Part 2 a 7-day intertidal marine biology field course, currently held at Dale Fort in South Wales (timetabled in SOES2030). You will be required to attend a 7-day residential shallow water survey techniques field course at the end of Part 2 (SOES3051).

Further information is available in the Student Handbooks and on the Academic Unit web pages: http://www.southampton.ac.uk/oes/. Details of the individual modules taken in each part are provided in the pathway guides.

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

You will undertake a balanced programme where you will gain the relevant skills and knowledge for a career using skills developed whilst studying Biology and Marine Biology.

The aims of this programme are to provide:

- A stimulating, informed learning environment through a wide range of interesting and contemporary courses, with flexibility of choice, but allowing you to increasingly focus as you progress from level to level.
- The opportunity to develop a knowledge and understanding of living organisms at several levels of biological organisation from the molecular, through cells and whole organisms, to ecosystems; and from an evolutionary perspective.
- An understanding of terrestrial and marine biological systems and processes in theory and practice.
- Exposure to a range of terrestrial and marine biological concepts.
- The opportunity to construct individual programmes of study within a coherent framework, including advanced concepts and techniques in biological topics of your choice.
- Training in relevant laboratory and field work skills.
- An opportunity to develop 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.
- An opportunity for you to develop the ability to think critically and to show that you can pursue independent study.
- Independent research projects on marine and terrestrial biological topics.
- An education and training suitable for a wide variety of careers and to prepare you for higher degrees and careers in marine and terrestrial biological research.
- The capability for life-long learning, study and enquiry.

Programme Learning Outcomes

Knowledge and Understanding

On successful completion of this programme you will have knowledge and understanding of:

A1. Fundamental knowledge and understanding of biology

A2. Core concepts and principles, themes, terminology and classification systems in the disciplines covered.

A3. Theory and practice of acquisition, analysis and interpretation of biological data across a range of biological applications

A4. How the chemistry and structure of the major biological macromolecules, including proteins and nucleic acids, determines their biological properties

A5. How the principles of genetics underlie much of the basis of modern molecular biology

A6. How the diversity of organisms on earth evolved and how they are identified and classified

A7. The use and interpretation of the outcome of a variety of statistical methods

A8. Key biological, physical and chemical processes operating in ecosystems

A9. The major attributes of the Earth environment, now and in the past

A10. The main evolutionary trends that can be found in marine and terrestrial species

A11. The fundamental processes of phytoplankton photosynthesis and primary production in the ocean

A12. The main factors influencing phytoplankton production and carbon recycling in the surface ocean

A13. The acquisition of a basic introduction to practical methods for observing phytoplankton, quantifying their biomass and determining photosynthesis and respiration rates

A14. The key molecules involved in the fundamental biochemical processes occurring in living cells including nucleic acid and protein function; gene structure and regulation

A15. The principles and application of a range of molecular biological experimental research techniques to biological studies

A16. Conduct a range of basic molecular biological and biochemical assays on nucleic acids and proteins and appropriately analyse laboratory data

A17. The distinction between and use of a range of library information and bioinformatic database services

A18. Basic ecological principles relating to shore ecology

A19. The use of keys to identify fauna and flora

A20. How to design, plan and implement a research project

A21. Water column sampling strategies in marine biology

A22. How to design and carry out a practical, pragmatic and effective field survey that collects quantified data suitable for statistical analysis to test a hypothesis

Subject Specific Intellectual and Research Skills

On successful completion of this programme you will be able to:

B1. Formulate and test hypotheses by planning, conducting and reporting a significant programme of (marine) biological research

B2. Use a range of (marine) biological skills to conduct experiments and/or collect observational data

B3. Use computer software and statistics to record and analyse data and determine their importance and validity

B4. Use information technology and other resources to find, extract and synthesize information

B5. Analyse critically and solve complex (marine) biological problems

B6. Solve problems relating to quantitative information

B7. Integrate your (marine) biological knowledge base with broader biological disciplines such as development, behaviour conservation and evolution

B8. Independently integrate and critically evaluate biological data from a wide range of sources, including primary source material in ecological journals and experimentation

B9. Demonstrate a systematic understanding of how the boundaries of (marine) biological knowledge are advanced through research

B10. Conduct risk assessments concerning the use of equipment, laboratory and field procedures

B11. Critically evaluate the data and methodology of current published research in (marine) biological sciences and present your conclusions

B12. Carry out literature searches and synthesis of material for written material

B13. Production of a thorough but concise scientific report describing the background, hypothesis being tested, aims/objectives of study, methodology, results, discussion of results and conclusions made from the data

Transferable and Generic Skills

On successful completion of this programme you will be able to:

C1. Communicate/present effectively both verbally and in writing on a range of topics in (marine) biological sciences to both specialised and non-specialised audiences.

C2. Work with, and within, a group towards defined outcomes.

C3. Learn independently through critical enquiry.

C4. Solve problems relating to qualitative and quantitative information.

C5. Demonstrate you have the ability to undertake appropriate further training.

C6. Manage resources and time.

C7. Assess the wider significance of scientific results, including any commercial applications and present the group results as an executive summary report.

C8. Deliver an oral presentation with appropriate visual aids and to appreciate the role of information technology in delivering presentations.

Programme Structure

The programme structure table is below:

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

Part I

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.

Typical course content

The programme is offered as a full-time course. The BSc Biology and Marine Biology programme normally lasts for three years.

Study is divided into three parts - each part normally corresponding to one year of full-time study. The programme is delivered in a semester pattern, each semester having 12 weeks for teaching and learning and 2-3 weeks for examinations.

The programme is divided into individual study modules at each part. Each study module is accredited as being worth a certain number of credit points to you on successful completion. Modules are normally worth 7.5 ECTS which is equivalent to 150 hours of study. Normally up to 60 hours comprises contact teaching (lectures, practical sessions, tutorials, etc.), and the remainder of the time is for your own independent study. Modules are generally assessed at the end of each semester, but some are assessed entirely by coursework throughout the duration of the module.

In Part 1 there are a number of compulsory modules, which lay a solid foundation in the basic discipline of this programme. More specialised training and options that enable diversification commence in Part 2.

In Part 3, students are exposed to the forefronts of the discipline’s knowledge, with the opportunity to conduct supervised original research. You will also be exposed to cutting edge research, participating in seminar presentations in wide-ranging and specialist topics.

A full list of the modules available for each part under each programme and module profiles are provided on the academic unit’s website at: http://www.southampton.ac.uk/oes/undergraduate/courses.page and http://www.southampton.ac.uk/biosci/undergraduate/courses.page

Part I Compulsory

The following modules are compulsory and must be taken:

Code	Module Title	ECTS	Type
SOES1008	Earth and Ocean System 2020-21	7.5	Compulsory
BIOL1024	Fundamentals of Biochemistry 2020-21	15	Compulsory
SOES1013	Key Skills for Marine Scientists 2020-21	7.5	Compulsory
SOES1007	Marine Invertebrates 2020-21	7.5	Compulsory
BIOL1029	Origins of Biodiversity 2020-21	15	Compulsory
SOES1015	Statistical Computing for Marine Sciences 2020-21	7.5	Compulsory

Part II

Part II Compulsory Modules

The following modules are compulsory and must be taken:

Code	Module Title	ECTS	Type
SOES2030	Coastal Ecology Field Course 2021-22	7.5	Compulsory
BIOL2001	Evolution 2021-22	7.5	Compulsory
SOES2006	Phytoplankton and Primary Production 2021-22	7.5	Compulsory

Part II Optional Modules

Choose 5 modules from the following. Your choice must include at least two BIOL modules and at least two SOES modules.

Code	Module Title	ECTS	Type
BIOL2039	Animal Behaviour 2021-22	7.5	Optional
BIOL2047	Animal Conservation 2021-22	7.5	Optional
BIOL2013	Bioinformatics and DNA Technology 2021-22	7.5	Optional

BIOL2038	Environmental Microbiology 2021-22	7.5	Optional
BIOL2010	Flow of Genetic Information 2021-22	7.5	Optional
SOES2017	Marine Benthic Ecology 2021-22	7.5	Optional
SOES2011	Marine Vertebrates 2021-22	7.5	Optional
SOES2032	Palaeobiology 2021-22	7.5	Optional
BIOL2007	Plant Development and Function 2021-22	7.5	Optional
BIOL2004	Pure and Applied Population Ecology 2021-22	7.5	Optional
SOES2040	Zooplankton Ecology and Processes (L5) 2021-22	7.5	Optional

Part III

Part III Compulsory Fieldwork

The following module is compulsory and must be taken.

Code	Module Title	ECTS	Type
SOES3051	Shallow Water Survey Techniques 2022-23	7.5	Compulsory

Part III Independent Study

A compulsory module of independent study is required.

Choose 1 module

Code	Module Title	ECTS	Type
BIOL3058	Bioscience Business 2022-23	15	Optional
BIOL3059	Bioscience Education 2022-23	15	Optional
BIOL3071	External Research Project 2022-23	15	Optional
BIOL3061	Field Research Project 2022-23	15	Optional
BIOL3069	In-Silico Research Project 2022-23	15	Optional

SOES3046	Independent Research Project (Oceanography, Marine Biology) 2022-23	15	Optional
BIOL3034	Laboratory Research Project 2022-23	15	Optional

Part III Optional Modules

Choose a further 5 modules. Your choice must include at least 2 BIOL modules and at least 2 SOES modules. If you have taken BIOL2010 and/or BIOL2013 you are not eligible to take SOES3031.

Code	Module Title	ECTS	Type
BIOL3051	Applied Plant Biology 2022-23	7.5	Optional
BIOL3072	Behavioural Ecology 2022-23	7.5	Optional
BIOL3053	Biodiversity and Conservation 2022-23	7.5	Optional
BIOL3057	Biofilms and Microbial Communities 2022-23	7.5	Optional
BIOL3063	Bioinformatics and Systems Biology 2022-23	7.5	Optional
SOES3041	Communicating and Teaching in the Undergraduate Ambassadors Scheme 2022-23	7.5	Optional
BIOL3001	Current Topics in Cell and Developmental Biology 2022-23	7.5	Optional
BIOL3067	Evolution and Development 2022-23	7.5	Optional
BIOL3074	Global Challenges in Biology 2022-23	7.5	Optional
SOES3054	Marine Conservation and Policy 2022-23	7.5	Optional
SOES3017	Marine Fisheries Ecology 2022-23	7.5	Optional
SOES3031	Marine Molecular Biology 2022-23	7.5	Optional
BIOL3013	Molecular Recognition 2022-23	7.5	Optional
BIOL3003	Plant Cell Biology 2022-23	7.5	Optional
BIOL3010	Topics in Ecology and Evolution 2022-23	7.5	Optional
SOES3053	Understanding Coral Reefs 2022-23	7.5	Optional

SOES3013	Zooplankton Ecology and Processes 2022-23	7.5	Optional
SOES3005	Sediments: Modern and Ancient 2022-23	7.5	Optional

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***.

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
- Career 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 through the Centre for Biological Sciences and Ocean and Earth Science:

- An induction programme at the start of the course, which will provide orientation, information on modules, courses, library and computer facilities.

- Programme and module guides/information. Hard copies are available, but are mainly published on the web: www.southampton.ac.uk/oes/ and www.blackboard.soton.ac.uk.
- Two large computer clusters at the NOCS for dedicated use by undergraduate students, with extra computer resources for M-level students. Additional computer clusters are available for your use on the other University campuses, as well as at the Halls of Residence.
- Access to the specialist Library facilities (the National Oceanography Library is one of the best subject focused libraries in the world) and academic skill packages.
- Training on Ocean and Earth Science's research vessels, which are fully equipped for boatwork practicals and project work in the local estuary and coastal waters and in our shore-side laboratory and aquarium facilities.
- Equipment to support your field work, including laptop computers, GPS, specialised shipboard data acquisition systems deployed from the 22m research vessel RV Callista.
- A research-led environment at the NOCS, which provides a high-quality learning environment for students.
- A wide range of well-equipped laboratories and aquaria which are available for student project work, and specific study rooms.
- Academic and pastoral support from members of staff. Our tutorial system aims to provide personalised pastoral and academic care for all students. You will be allocated a member of the academic staff from Biology and one from OES as your personal tutor and they will be charged with your guidance throughout your undergraduate career. Your SOES Tutor will hold formal tutorials in years 1 and 2 but you can see either tutor informally in either year. You can also approach the Programme Leader for Biology and Marine Biology, or either Academic Unit's Senior Tutor if necessary.
- Access to all administrative and academic material on the CfBS, Programme and individual module web sites and/or Blackboard (http://www.blackboard.soton.ac.uk).
- Access to all academic staff through an appointment system and e-mail.
- Access to administrative staff in the Faculty Student Offices during the normal working day.

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 feedback on your behalf.
- Serving as a student representative on Faculty Scrutiny Groups for programme validation.
- Taking part in programme validation meetings by joining a panel of students to meet with the Faculty Scrutiny Group.

Further details on the University's quality assurance processes are given in the *Quality Handbook.*

Career Opportunities

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

- Postgraduate degrees
- Teacher training
- Conservation and the environment
- Industry
- Journalism
- CEFAS
- IFCAs
- Natural England
- Wildlife Trusts
- Environmental Consultancy
- Universities

External Examiner(s) for the programme

Name: Dr Tasmin Crowe – University College Dublin

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 take full advantage of the learning opportunities that are provided. More detailed information can be found in the programme handbook.

Appendix 1:

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:

Additional Costs

Type	Details
Clothing	Description: Lab coats and safety spectacles: Marine Biology students will receive a lab coat, dissection kit and waterproof notebook during Induction. If these are lost the student must replace them at their own expense. Field course clothing: You will need to wear suitable clothing when attending field courses, e.g. waterproofs, walking boots. You can purchase these from any source. Wet Suits: You will need to purchase a suitable wet suit and associated snorkelling equipment if participating on SOES6052.
Field Equipment and Materials	· Marine Biology students will receive a lab coat, dissection kit and waterproof notebook during Induction. · Oceanography students will receive a lab coat and waterproof notebook during Induction. Insurance (travel, medical, personal property and baggage) Students are automatically insured whilst on University organised field courses undertaken as part of their official studies, including field.
Field Trips	SOES6052: Tropical Field Course This field trip is optional and open only to MSci Marine Biology and MSci Biology with Marine Biology students. Students are expected to fund their travel and to provide their own snorkelling equipment, including 3mm-thick wetsuit. The total cost is currently expected to be no more than £800-900. The department provides full board, IT and lab facilities and course-related travel whilst on Bermuda.
IT	Description: Data Storage: Students are expected to provide their own data storage device Software Licenses: Will be provided by the University where appropriate. Hardware: It is advisable that students provide their own laptop or personal computer, although shared facilities are available across the University campus.
Other	Please note that if a field course is compulsory for your degree programme and you later move from that degree programme to one where that field course is optional, you will be charged for the cost of that field course. To provide an example: students on the MSci Marine Biology programme undertaking the field course to Bermuda will be charged the full cost of the field course if they later choose to transfer to the BSc Marine Biology degree programme. In addition to the field courses mentioned in this booklet, there are also one-day field courses associated with specific modules; students are expected to cover food and drink costs for these days, but transport is arranged and paid for by the department. As the department arranges transport, should students wish to make their own way to or from field courses, then they must meet these costs themselves.

	Laboratory Equipment and Materials: Laboratory equipment and consumables will be provided where appropriate.
Printing and Photocopying Costs	Coursework such as essays, projects and dissertations may be submitted online. However, some items will require submission as a printed copy, including some items where it is not possible to submit online. A list of the University printing costs can be found here: http://www.southampton.ac.uk/isolutions/students/printing-for-students.page 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. The University Print Centre also offer a printing and copying service as well as a dissertation/binding service. They also provide a large format printing service, e.g. Academic posters.
Textbooks	Description: Where a module specifies core texts these should generally be available on the reserve list in the library. However, 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.

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.