

# **Plymouth University**

Faculty of Science & Technology

School of Marine Science & Engineering

## **Programme Specification**

BSc Marine Biology (0732)

September 2022

## 1. **BSc (Honours) Marine Biology**

**Final award title** BSc (Honours) Marine Biology

**Level 6 Intermediate award title** BSc Marine Biology

**Level 5 Intermediate award title** Diploma of Higher Education

**Level 4 Intermediate award title** Certificate of Higher Education

**UCAS code:** C161

**JACS code:** C161

2. **Awarding Institution:** University of Plymouth

**Teaching institution:** University of Plymouth

3. **Accrediting body:** N/A

## 4. **Distinctive Features of the Programme and the Student Experience**

The B.Sc. (Hons) Marine Biology is designed to provide a broad, multidisciplinary, study of the biology of marine organisms. The programme is particularly suitable for students interested in learning to identify, frame and address scientific questions in a marine context. While focusing on the whole organism the programme goes from molecular, cellular and genetic levels of organisation up to that of whole ecosystems.

The Marine Biology degree focuses on the biology of organisms: from the diversity of life within a drop of sea-water to the feeding biology of whales. The programme emphasises the importance of an experimental approach to this multi-faceted discipline. The programme has a large practical component delivered through field courses in stages 1 and 2 together with field days and laboratory practicals that complement the lectures and seminars. The programme utilises facilities at the University's Marine Station for boat practicals and students also have the option to undertake the HSE Professional SCUBA course; this is the standard qualification for all commercial diving in the UK. For reasons of Health & Safety, there are limited places on the HSE Professional SCUBA course and additional costs are involved.

There is a strong emphasis is on research-informed teaching throughout the degree. In level 6 all students conduct a research project either based in Plymouth or at a host institution. Students present the outcomes of their research in the form of a scientific paper and via an oral presentation at our annual Marine Biology Conference.

## **5. Relevant QAA Subject Benchmark Group(s)**

This programme conforms to the academic standards set out in the National Subject Benchmark Statement for Biosciences (2007). The Benchmark Statement is available at:

<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/Biosciences07.pdf>

These benchmark statements are referred to throughout the intended learning outcomes for this programme.

## 6. Programme Structure

The diagrams below outline the structure of the BSc (Hons) Marine Biology programme. Details relating to the content of each module can be found in the individual PUMRs. Note that not all optional modules will be available each year.

### 6.1 Stage 1 / Level 4

<b>Semester 1</b>	MBIO120* Introduction to Marine Biology		
	BIOL131 Cells: The building blocks of life		OS102 Oceanography
<b>Semester 2</b>	MBIO161 Evolution & Behaviour	MBIO123* Marine Biology Field Course	MBIO162 Biodiversity

\* Tutorials. Modules that include the Stage 1 tutorial provision for all marine biology degree programmes.

## 6.2 Stage 2 / Level 5

<b>Semester 1</b>	MBIO226 Experimental Marine Biology Field Course 20 credits	MBIO228 Biology of Marine Organisms 20 credits	Option 1 20 credits
<b>Semester 2</b>	MBIO222 Ecophysiology of Marine Animals 20 credits	MBIO223 Methods in Marine Biology 20 credits	MBIO217 Ecology of Shallow Water Marine Habitats 20 credits

### Stage 2 / Level 5 Option 1 – 20 credits from:

BIOL214 Ecology (20 credits)

MBIO221 Marine Molecular Biology (20 credits)

OS207 Scientific Diving (20 credits).

## 6.3 Stage 4 / Level 6

<b>Semester 1</b>	MBIO313 Personal Research 40 credits	MBIO329 Marine Biology: an evolutionary approach 20 credits	Option 1 20 credits
<b>Semester 2</b>		Options 2 & 3 40 credits	

### Stage 4 / Level 6 Option 1 – 20 credits from:

BIOL311 Ecotoxicology (20 credits)

MBIO324 Speciation & Diversity (20 credits)

MBIO327 Marine Ecology (20 credits)

### Stage 4 / Level 6 Option 2 & 3 – 40 credits from:

BIOL322 Aquatic Microbial Ecology (20 credits)

MBIO317 Behavioural Ecology (20 credits)

MBIO339 Ecology & Conservation of Marine Vertebrates (20 credits)

MBIO363 Fish & Fisheries (20 credits)

MBIO364 Conservation Physiology (20 credits)

## **7. Programme Aims**

We aim to deliver a programme that:

- offers a broad, relevant and contemporary curriculum, enriched by the scholarly activity of staff.
- provides a broad understanding of the developmental biology, physiology, behaviour, diversity and ecology of marine organisms.
- provides plentiful opportunities for practical/field work and experiential learning in marine biology
- challenges, stimulates, enthuses and encourages students by promoting a process-based approach to the different disciplines that comprise marine biology.

Through the B.Sc. Marine Biology programme we aim to develop graduates who:

- have thorough knowledge, understanding and practical experience in key areas of marine biology;
- are competent in a wide range of intellectual, biological and key skills;
- are critical, rational and creative thinkers;
- are confident, adaptable and independent learners;
- are readily employable;
- are intellectually inquisitive, equipped for life-long learning and ready to play a co-operative and responsible role in society.

## **8. Programme Intended Learning Outcomes**

### **8.1. Knowledge and understanding**

On completion graduates should be able to demonstrate:

1. an understanding of the impact of evolutionary theory on ideas in marine biology;
2. an understanding of the molecular, cellular and physiological processes of marine organisms;
3. the ability to design and conduct experimental studies of marine organisms;
4. an appreciation of the complexity and diversity of life processes through the study of marine organisms and the interrelationships between them and their environment;
5. the ability to read and use appropriate literature with a full and critical understanding, while addressing such questions as content, aims, objectives, quality of information, and its interpretation and application;
6. the capacity to give a clear and accurate account of a subject, marshal arguments in a mature way and engage in debate and dialogue both with specialists and non-specialists, using appropriate scientific language;

7. critical and analytical skills: a recognition that statements should be tested and that evidence is subject to assessment and critical evaluation;
8. the ability to employ a variety of methods of study in investigating, recording and analysing material;
9. the ability to think independently, set tasks and solve problems.

## **8.2. Cognitive and intellectual skills**

On completion graduates should be able to:

1. recognise and apply subject-specific theories, paradigms, concepts or principles;
2. analyse, synthesise and summarise information critically, including published research or reports;
3. obtain and integrate several lines of subject-specific evidence to formulate and test hypotheses;
4. apply subject knowledge and understanding to address familiar and unfamiliar problems;
5. recognise the moral and ethical issues of investigations and appreciate the need for ethical standards and professional codes of conduct.

## **8.3. Practical skills**

On completion graduates should be able to:

1. undertake sufficient practical work to ensure competence in the basic experimental skills appropriate to the discipline under study;
2. design, plan, conduct and report on investigations;
3. record, collate and analyse data using appropriate techniques in the field and/or laboratory, working individually or in a group;
4. undertake field and/or laboratory investigations of living systems in a responsible, safe and ethical manner.

## **8.4. Numeracy skills**

On completion graduates should be able to:

1. receive and respond to a variety of sources of information: textual, numerical, verbal, graphical;

2. carry out sample selection; record and analyse data in the field and/or the laboratory; ensure validity, accuracy, calibration, precision, replicability and highlight uncertainty during collection;
3. prepare, process, interpret and present data, using appropriate qualitative and quantitative techniques, statistical programmes, spreadsheets and programs for presenting data visually;
4. solve problems by a variety of methods, including the use of computers.

### **8.5. Communication, presentation and IT skills**

On completion graduates should be able to:

1. communicate about their subject appropriately to a variety of audiences using a range of formats and approaches, using appropriate scientific language;
2. cite and reference work in an appropriate manner, including the avoidance of plagiarism;
3. use the internet and other electronic sources critically as a means of communication and a source of information;
4. undertake field and/or laboratory investigations of living systems in a responsible, safe and ethical manner.

### **8.6. Interpersonal and teamwork skills**

On completion graduates should be able to:

1. identify individual and collective goals and responsibilities and perform in a manner appropriate to these roles, in particular those being developed through practical, laboratory and/or field studies;
2. reevaluate performance as an individual and a team member; evaluate the performance of others;
3. develop an appreciation of the interdisciplinary nature of science and of the validity of different points of view.

### **8.7. Self-management and professional development skills**

On completion graduates should be able to:

1. develop the skills necessary for self-managed and lifelong learning (e.g. working independently, time management, organisational, enterprise and knowledge transfer skills);
2. identify and work towards targets for personal, academic and career development;
3. develop an adaptable, flexible and effective approach to study and work.

## 9. Admissions Criteria, including APCL, APEL and DAS arrangements

All applicants must have GCSE (or equivalent) Maths and English at Grade C or above.

<b>Entry Requirements for BSc (Hons) Marine Biology</b>	
A-level/AS-level	Normal minimum entry requirements are: A-levels: 120-144 points. A typical offer might be 128 points including B at A-level Biology and grade B in a second science. Only A-level Biology required. Points can include a relevant Extended project (EPQ) but must include 3 A-levels. Qualifying science subjects are: Applied Science, Applied Marine Science, Chemistry, Environmental Science, Environmental Studies, Geography, Geology, Mathematics, Physics, and Psychology. General Studies is not a qualifying A-level.
BTEC National Diploma/QCF Extended Diploma	Candidates may be interviewed before an offer is made. Grade Distinction, Distinction, Merit (DDM) Applied Science is acceptable depending on subjects studied. Animal Management and Countryside Management are not normally accepted (exceptions apply for certain Colleges and subject combinations).
Access to Higher Education at level 3	Candidates are interviewed before an offer is made. Pass an Access to HE Diploma in Science with 45 credits at Level 3, of which 30 credits must be at Distinction and 15 credits at Merit or higher from a minimum of 15 credits in Biology units at Distinction/Merit, plus Maths, Physics, Chemistry, Environmental Science/Studies, Applied Science, Geography, Geology or Technology.
Welsh Baccalaureate	AB at A Level to include Biology and a second science subject, plus 120 points from WB
Scottish Qualifications Authority	320 points including Biology and a second science.
Irish Leaving Certificate	AABBB at Higher Level, to include Biology and second science plus Ordinary Level Grade C Maths and English
International Baccalaureate	30 overall to include 5 at HL Biology plus 5 in second science at HL. If overseas and not studying English within IB, must have IELTS 6.0 overall with 5.5 in all other elements.

<p>Progression from year zero BSc Marine Biology with Foundation year at the University of Plymouth.</p>	<p>Students who pass the Year zero Foundation programme and meet the conditions specified can progress to one of our BSc (Hons) Marine Biology programmes. To progress to the next stage, a student would normally be expected to achieve an average mark &gt;60% and pass all modules (120 credits). In certain circumstances we allow your overall performance to compensate (CP) for failure in a maximum of 20 credits per stage. There are a limited number of places available within each of the marine biology programmes [BSc (Hons) Marine Biology, Marine Biology and Coastal Ecology and Marine Biology and Oceanography]; the number of available places will be specified at the commencement of each academic year. In the event of over-subscription, progression to these programmes will be determined on the basis of academic performance in the Foundation Year, and suitability to each of the programmes, which will be determined at interview. Guidance on choice and detailed advice will be provided by the Admissions Tutor and Foundation year tutors.</p>
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## 10. Progression criteria for Final and Intermediate Awards

The University's standard regulations for progression apply. A copy of the regulations can be found at <http://www1.plymouth.ac.uk/extexam/pages/academic-regulations.aspx>

After Level 4 students may decide to transfer to another marine biology BSc programme scheme at the beginning of Level 5. All transfers are subject to availability of places.

Progression onto Level 5 of Marine Biology will be considered for holders of an FdSc in an appropriate subject dependent on prior experience. Any FdSc that names this award as an agreed progression route will automatically be deemed suitable for Level 5. Progression from Plymouth University International College is subject to passing Stage 1 (Level 4) of the PUIC Equivalent Integrated Programme. This consists of the standard Stage 1 of the programme plus ILS1005: Interactive Learning Skills and Communications.

The School has developed exchange schemes with universities in other countries, including continental Europe. Students may spend all of Level 5 on such a scheme. Students on exchange must follow and pass an approved programme of study. The marks gained do not normally contribute numerically to the final degree; the final award will be based on Level 4 (10%) and Level 6 (90%) marks.

## 11. Exceptions to Regulations

None

## 12. Transitional Arrangements

This section outlines changes to the programme specification that will be introduced in September 2019. The first cohort of students to take the programme described here, in its entirety, will graduate in 2021. Students graduating in 2019 and 2020 will have the interim arrangements described below:

Year of entry	Stage 1	Stage 2	Stage 3/4
2020	New	New	New
2019	New	New	New
2018	Old	New	New

Below is a list of all the old modules and how they can be mapped onto the new coded modules. This table should be used when students are required to repeat credits from the old degree programme after the new programme have started.

Modules in old scheme	Equivalents in new scheme
BIOL120 Cell Biology and Microbiology	BIOL131 Cells: The building blocks of life
MBIO121 Life of Earth	MBIO162 Biodiversity
OS102 Physical & Chemical Processes of the Ocean	New module
Plymouth Plus (OS106PP, BIOL124PP, BIOL125PP, ROCO103PP or ENGL405PP)	Removed from Programme and substituted for OS102
MBIO122 Evolution & Biodiversity	MBIO161 Evolution & Behaviour
MBIO340 Behaviour & Physiology of Marine Animals	MBIO364 Conservation Physiology
MBIO328 Comparative Ecophysiology	MBIO363 Fish & Fisheries
MBIO322 Marine Microbiology – Ecology and Applications	BIOL322 Aquatic Microbial Ecology

## 13. Mapping and Appendices:

### 13.1. ILOs against Modules Mapping

Programme Learning Outcome	Related Core Modules
<b>Knowledge and understanding</b>	
An understanding of the impact of evolutionary theory on ideas in marine biology	MBIO161, MBIO329

An understanding of the molecular, cellular and physiological processes of marine organisms	BIOL131,, MBIO228, MBIO222
The ability to design and conduct experimental studies of marine organisms	MBIO123, MBIO223, MBIO226, MBIO313
An appreciation of the complexity and diversity of life processes through the study of organisms and the interrelationships between them and their environment	MBIO162, MBIO161, MBIO131, MBIO123, MBIO228, MBIO217, MBIO222
The ability to read and use appropriate literature with a full and critical understanding, while addressing such questions as content, aims, objectives, quality of information, and its interpretation and application	MBIO161, MBIO161, all modules at levels 5 & 6.
The capacity to give a clear and accurate account of a subject, marshal arguments in a mature way and engage in debate and dialogue both with specialists and non-specialists, using appropriate scientific language	All modules
Critical and analytical skills: a recognition that statements should be tested and that evidence is subject to assessment and critical evaluation	All modules
The ability to employ a variety of methods of study in investigating, recording and analysing material	MBIO123, MBIO223, MBIO226, MBIO313
The ability to think independently, set tasks and solve problems	All modules, but particularly MBIO313
<b>Intellectual skills</b>	
A. Recognise and apply subject-specific theories, paradigms, concepts or principles	All modules, but particularly those at level 6
B. Analyse, synthesise and summarise information critically, including published research or reports	MBIO162, MBIO161 and all modules at level 5 & 6
C. Obtain and integrate several lines of subject-specific evidence to formulate and test hypotheses	MBIO123, MBIO223, MBIO217, MBIO226, MBIO313
D. Apply subject knowledge and understanding to address familiar and unfamiliar problems	MBIO123, MBIO161, MBIO223, MBIO217, MBIO226, MBIO313

E. Recognise the moral and ethical issues of investigations and appreciate the need for ethical standards and professional codes of conduct	MBIO223, MBIO313
<b>Practical skills</b>	
F. Undertake sufficient practical work to ensure competence in the basic experimental skills appropriate to the discipline under study	MBIO120, MBIO123, MBIO162, MBIO223, MBIO226, MBIO222, MBIO313
G. Design, plan, conduct and report on investigations	MBIO123, MBIO223, MBIO222, MBIO226, MBIO313
H. Record, collate and analyse data using appropriate techniques in the field and/or laboratory, working individually or in a group	MBIO123, MBIO223, MBIO222, MBIO217, MBIO226, MBIO313
I. Undertake field and/or laboratory investigations of living systems in a responsible, safe and ethical manner	MBIO120, MBIO123, MBIO217, MBIO222, MBIO223, MBIO226, MBIO313
<b>Numeracy skills</b>	
J. Receive and respond to a variety of sources of information: textual, numerical, verbal, graphical	All modules
K. Carry out sample selection; record and analyse data in the field and/or the laboratory; ensure validity, accuracy, calibration, precision, replicability and highlight uncertainty during collection	MBIO120, MBIO123, MBIO223, MBIO226, MBIO313, MBIO217
L. Prepare, process, interpret and present data, using appropriate qualitative and quantitative techniques, statistical programmes, spreadsheets and programs for presenting data visually	MBIO120, MBIO123, MBIO223, MBIO226, MBIO313, MBIO217
M. Solve problems by a variety of methods, including the use of computers	MBIO123, MBIO223, MBIO217, MBIO226, MBIO313
<b>Communication, presentation and IT skills</b>	
N. Communicate about their subject appropriately to a variety of audiences using a range of formats and approaches, using appropriate scientific language	All modules

O. Cite and reference work in an appropriate manner, including the avoidance of plagiarism	MBIO120, MBIO161, MBIO162 and all modules at level 5 & 6
P. Use the internet and other electronic sources critically as a means of communication and a source of information	All modules
<b>Interpersonal and teamwork skills</b>	
Q. Identify individual and collective goals and responsibilities and perform in a manner appropriate to these roles, in particular those being developed through practical, laboratory and/or field studies	MBIO120, MBIO123, MBIO223, MBIO226, MBIO313
R. Recognise and respect the views and opinions of other team members; negotiating skills	MBIO123, MBIO162, MBIO223, MBIO226, MBIO313
S. Evaluate performance as an individual and a team member; evaluate the performance of others	MBIO123, MBIO162, MBIO223, MBIO226, MBIO313
T. Develop an appreciation of the interdisciplinary nature of science and of the validity of different points of view	All modules
<b>Self-management and professional development skills</b>	
U. Develop the skills necessary for self-managed and lifelong learning (e.g. working independently, time management, organisational, enterprise and knowledge transfer skills)	All modules, but particularly MBIO313
V. Identify and work towards targets for personal, academic and career development	All modules, but particularly MBIO123, MBIO223, & MBIO313
W. Develop an adaptable, flexible and effective approach to study and work	All modules, but particularly MBIO162, MBIO223, & MBIO313

## 13.2 Assessment against Modules Mapping

Module code	Assessment (Component) Type			
	Coursework	Exam	Test	Practical
<b>Stage 1/Level 4</b>				
<i>Core modules</i>				
MBIO120	100			
BIOL131	50	50		
OS102	50	50		
MBIO123	75		25	
MBIO161		50	50	
MBIO162		50		50
<b>Stage 2/Level 5</b>				
<i>Core modules</i>				
MBIO226	100			
MBIO228	40	60		
MBIO217	50	50		
MBIO222	50	50		
MBIO223	70			30
<i>Option modules</i>				
MBIO221	50	50		
BIOL214	50	50		
OS207	100			
<b>Stage 4/Level 6</b>				
<i>Core modules</i>				
MBIO313	75			25
MBIO329	30	70		
<i>Option modules</i>				
MBIO317	50	50		
BIOL322	50			50
MBIO324	30	70		
MBIO327	50	50		
MBIO364	40	60		
MBIO363	50	50		
BIOL311	50	50		



