

## PROGRAMME SPECIFICATION



1	<b>Awarding Institution</b>	Newcastle University
2	<b>Teaching Institution</b>	Newcastle University
3	<b>Final Award</b>	BSc Hons.
4	<b>Programme Title</b>	Marine Biology and Oceanography
5	<b>UCAS/Programme Code</b>	CF17
6	<b>Programme Accreditation</b>	IMarEST
7	<b>QAA Subject Benchmark(s)</b>	Biology/Earth & Environmental Science
8	<b>FHEQ Level</b>	6
9	<b>Date written/revised</b>	December 2013

### 10 Programme Aims

1. To enable everyone on the degree programme to develop a thorough knowledge and understanding of Marine Biology and Oceanography both across, and at the interface between, these two intimately related disciplines, in the specialist areas of; (i) the biology of marine organisms; (ii) the ecology of marine communities and (iii) the physical and chemical processes occurring in the marine environment, together with appropriate research, practical and employability skills
2. To be able to appreciate the application of this knowledge and understanding to the management of human activities
3. To provide a joint programme in Marine Biology and Oceanography for well-motivated people from a diversity of social, geographic and academic backgrounds
4. To provide an advanced curriculum enhanced by an active research environment that will encourage: thinking in a critical and constructive manner, awareness of new technologies and the skills and aptitudes needed for the development of a wide variety of careers within Marine Science and other areas of graduate employment
5. To stimulate an informed interest in multidisciplinary Marine Science and engender an awareness of its interaction with society and the environment
6. To provide an environment within which everyone can enjoy their learning experience and develop the skills and attitudes to underpin lifelong learning

### 11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to appropriate benchmark statements.

#### **Knowledge and Understanding**

On completing the programme students should have, and be able to, demonstrate:

- A1 a coherent understanding of Marine Biology and Oceanography, including a knowledge and understanding of (i) the biology of marine organisms, (ii) the ecology of marine communities and (iii) the physical and chemical processes occurring in the marine environment.

- A2 a coherent understanding of the impact of human activities on the marine environment
- A3 a coherent understanding of the role of interdisciplinary marine science in the management and conservation of the marine environment.
- A4 an understanding of current developments in Marine Biology and Oceanography, and appreciate the possible implications

#### **Teaching and Learning Methods**

Knowledge and understanding (A1 – A4) are principally imparted through lectures and seminars. Seminars and advanced lecture courses in Stage 3 are particularly important in delivering A4 as they provide the opportunity for exposure to knowledge at the 'cutting edge' of advancement in the field. Throughout the course students are directed to appropriate reading materials. The tutorial system and study skills classes provide support and guidance in the use of literature and the diversity of sources available. A number of 'self-study' packs, backed by tutorial support and seminars, are used to develop IT and statistical expertise.

#### **Assessment Strategy**

Knowledge and understanding of the subject are primarily assessed through unseen written examinations to examine the breadth of factual knowledge. Assessed written tasks, essays and library projects are used to determine the ability to apply knowledge and integrate material. Formative feedback is provided throughout the course to allow students to assess and develop their learning skills.

#### **Intellectual Skills**

On completing the programme students should have developed skills in:

- B1 Sourcing, abstraction and synthesis of information from a range of media
- B2 Demonstrating academic rigour and the ability to propose, test and challenge hypotheses
- B3 Experimental design
- B4 Critical analysis and interpretation of data and text
- B5 Solving problems and making reasoned decisions

#### **Teaching and Learning Methods**

Cognitive skills are introduced at Stage 1 and developed progressively throughout Stage 2 to an advanced level in Stage 3 modules. Group practical work and projects allow students to develop analytical skills supplemented by experimental design and data collection through practical classes, fieldwork and boat work. The Stage 3 research project and overseas field course promotes development of hypothesis testing and problem solving skills.

#### **Assessment Strategy**

Academic rigour and hypothesis development and testing are primarily assessed through coursework assessments associated with field, boat and laboratory practical exercises, the residential field course and ultimately the honours research project. Assessments range from written reports, short 'journal-style' articles, posters and computer based exercises. These determine ability to conduct research based exercises integrating knowledge and practical abilities. Experimental design, hypothesis testing and data analysis skills are further assessed through an unseen, open book written examination. Formative feedback is provided throughout the course to allow students to assess and develop their learning skills.

Practical Skills
<p>On completing the programme students should be able to:</p> <p>C1 Plan, design and execute effective laboratory experiments and field and boat work, including risk assessment</p> <p>C2 Conduct research both individually and as part of a small group</p> <p>C3 Employ a variety of laboratory techniques for both Marine Biology and Oceanography (e.g. microscopy, water chemical analysis)</p> <p>C4 Collect and analyse field, ecological and boat-based oceanographic data</p> <p>C5 Employ computer-based techniques for analysis of oceanographic data</p>
Teaching and Learning Methods
<p>Practical, field and research skills are developed in laboratory, field and boat classes. Students are encouraged to develop and hone their practical skills through tutorial support and supervisor contacts in practical classes and project work. Independent and group project based exercises further reinforce these lessons and allow self-evaluation and critique.</p>
Assessment Strategy
<p>Assessment is primarily based on coursework in the form of written reports, targeted worksheets, computer based exercises and formative assessment and feedback in the laboratory/field/boat.</p>
Transferable/Key Skills
<p>On completing the programme students should be able to demonstrate:</p> <p>D1 Written communication in technical and popular science</p> <p>D2 Oral and poster presentation skills</p> <p>D3 Team work and interpersonal communication</p> <p>D4 Computer literacy</p> <p>D5 Numeracy and statistical expertise</p> <p>D6 Planning, organisation and independent learning</p> <p>D7 Awareness of their responsibility to society and the environment, including their potential influence in society</p> <p>D8 That they are motivated people, able to build on the learning experiences of the degree programme and the range of learning experiences and initial qualifications they had on entry</p> <p>D9 That they are capable of obtaining and developing careers in a wide range of work environments</p>
Teaching and Learning Methods
<p>Key skills (D1 – D6) are taught formally at Stage 1 and developed further at Stage 2. Skills D7 to D9 are developed through participation in a work placement at Stage 2, which allows students to become more independent and work alongside organisations in the marine sector. All skills (D1 – D9) are reinforced to an advanced level at Stage 3 through exposure to practitioners and case studies in seminars and from visiting lecturers. These are an integral part of many advanced modules. Students take part in a variety of problem solving activities, including design of projects, role play exercises and planning overseas travel.</p>
Assessment Strategy
<p>Key skills are assessed by a combination of examination and coursework assignments, including project and practical reports, a reflective log, essays, oral and poster presentations and computer-based assessments.</p>

## 12 Programme Curriculum, Structure and Features

### Basic structure of the programme

- (a) Duration three years
- (b) Comprises three stages
- (c) A total of 360 credits, 120 Stage 1, 120 Stage 2, 120 Stage 3
- (d) Module credit values vary between 30 and 60. 30 credits represent 300 hours of student activity and 60 credits 600 hours of student activity
- (e) Progression: Pass in 120 credits is required in Stages 1 and 2. Modules which are failed with a mark of 35 to 39 can be compensated if the overall mark is 40 or more. The Board of Examiners may pass by discretion if circumstances warrant
- (f) Innovative features of the degree include the amount and integration of field studies into the programme, the vocational work placement, the overseas field course and the use of external practitioners and case studies to inform Stage 3 teaching. Students undertake two weeks of residential field courses, one week of local field work and three other modules include practical laboratory, field and research vessel classes

#### (ii) Stage 1

Stage 1 is an introduction to core subjects in Marine Biology and Oceanography, supported by a balanced programme of modules designed to provide the sound scientific background required for the later stages of the degree programme.

Four compulsory modules are defined: **MST1101 Marine Biology, MST1102 Diversity and Behaviour of Marine Animals, MST1103 The Marine Environment and MST1104 Marine Study Skills.** **MST1104** covers the wide variety of ways in which the marine scientist records marine environmental data, how that information is processed, and how it is subsequently used. All candidates for the Honours degree in Marine Biology and Oceanography must demonstrate a high level of proficiency and knowledge of the subject areas covered by all of the above listed modules.

The four compulsory modules at Stage 1 introduce the student to key areas of the syllabus and provide an introduction to practical study through the use of field and laboratory classes and work on-board the research vessel. Independent field study with appropriate study guides, video and other methods of learning are also used to provide the candidate with a rich and diverse background to their learning of Marine Biology and Oceanography, to ensure that the student has developed the skills required. The courses provide both an overview and an introduction to the subject and the modules are suitable for those proceeding to other scientific disciplines.

At Stage 1 students will be assigned to Personal Tutors who will guide them in learning how to supplement the formal taught components of the course with private study. Tutorials will provide a small group study environment where the student will be encouraged to practice both study and communication skills prior to proceeding to those modules at Stages 2 and 3 where these skills will be formally assessed.

*On completing the Stage 1 programme the student:*

- *will be eager to learn more about Marine Biology and Oceanography,*
- *should have a sound knowledge of these subjects at an introductory level,*
- *will understand the basis for the study of interdisciplinary marine science through a combination of biological, chemical and physical sciences.*

## Stage 2

On completion of Stage 1 every student, whatever their cultural or academic background, will have achieved an enhanced basis for more advanced study of the subject at Stage 2 of the Honours Marine Biology and Oceanography programme which builds on the platform created by the first year of study. A number of compulsory subjects are studied at greater depth and new subjects are introduced. The modules include both pure and applied aspects of the subject material as well as a continuation of basic scientific and information skill related modules.

All students will take the 30 credit compulsory modules **MST2101 Marine Ecology** and **MST2103 Marine Processes and Cycles**. These build directly on learning during Stage 1 and introduce additional concepts that will lead into more advanced modules to be studied in Stage 3 of the degree programme.

Considerable emphasis is given to the learning of field and laboratory practical techniques and employability skills in the compulsory modules **MST2104 Marine Research and Employability Skills** and **MST2105 Marine Practical Skills**. These modules include laboratory and field study, data analysis, statistics and other numerical methods, alongside a vocational work placement with a provider in the marine sector. Students will be given training in sea survival techniques and safety issues and will undertake small group scientific investigations on a field course that has traditionally been held on the Isle of Cumbrae to provide them with experience of more diverse marine environments.

There are modules encouraging learning of the theoretical basis of specific subject areas, for which every student will have to study a variety of sources of information. Each student will also study modules that will enhance related practical skills. These modular elements are designed to develop student skills in information technology, data and information source handling, writing and oral presentation. All of these skills are essential to study at Stage 3, but they will also help facilitate progression to a range of careers following graduation.

*On completing the Stage 2 programme the student:*

- *will have gained a sound knowledge of the biology of marine organisms, and relevant physical and chemical processes in the marine environment,*
- *should have knowledge of the experimental study of a range of marine science disciplines,*
- *will be able to locate and review literature using both library based and electronic information retrieval systems,*
- *will have developed a variety of practical and field skills appropriate for a marine scientist,*
- *will be in a position to plan and carry out an independent scientific investigation using either field or laboratory techniques,*
- *should be capable of independent study including the ability to present a review of their own work or that of others in relation to published sources of literature,*
- *will be able to recognise their transferable skills and apply them to a range of situations,*
- *will be aware of career opportunities within the marine sector and have the skills required to be an employable graduate*

*Building on these skills will be a major part of the programme of study at Stage 3.*

### Stage 3

Stage 3 of the degree programme has been designed to provide both broad coverage of the subject and to provide opportunities for specialisation and study in depth. The whole programme builds on the diverse learning outcomes achieved in the previous two Stages of the degree programme.

All students will take the compulsory 30 credit modules **MST3101 Advanced Marine Biology** and **MST3103 Advanced Oceanography**. The 30 credit Advanced modules present a subject in the context of the current research literature. The student will complete two Advanced modules and will select to study four specific topics within each of these modules. Such courses are inevitably specialised and deliberately reflect the research expertise of the School. The Advanced modules at Stage 3 will incorporate a small group approach and involve further practical work on-board the research vessel. At this Stage the student will be trained in procedures for study on a research vessel and associated safety measures. Numerical skills may lead into module components involving mathematical modelling and computer simulation in the analysis of marine biological and oceanographical problems. This broad range of advanced course modules forms the background to the student's own independent studies.

A major component of the course that integrates much of the proceeding training is the **RESEARCH PROJECT** (60 credits). One aspect of this module is the residential overseas field course. This will allow the student the opportunity to further develop their practical field skills, and transfer knowledge gained about the local marine environment to overseas ecosystems. The student will undertake a small group research project that is designed and conducted during the trip, and will write this up as an individual report upon their return. This will further prepare them for collaboration and advanced scientific research.

The main component of the Research Project is an independent scientific investigation, that will either be carried out solely in Newcastle under the supervision of an academic within the School, or outside of Newcastle, usually overseas, in partnership with an external organisation or institution. In this instance the student will have an academic supervisor in Newcastle and an external supervisor from their host organisation. Students will undertake independent research on a topic relevant to Marine Zoology and present it as a written dissertation. In addition, students will work in small groups to prepare an oral presentation on a recent research development in Marine Science, which will be presented to the class and academic members of the School. The oral component will be assessed but the student will have already gained experience at earlier stages of the degree programme and can expect to have achieved a high level of technical and professional competence by this stage of the degree programme.

To further complement their development as research scientists, students will attend seminars delivered by external presenters across the marine sector. These will present conceptual ideas and provide the basis for in-depth independent study and will often involve interaction with Marine Scientists invited to participate in the programme.

### Key features of the programme (including what makes the programme distinctive)

This programme integrates the wider ocean sciences with traditional Marine Biology, providing students with the opportunity to study marine chemistry, physical processes and large scale ocean systems within a biological context. The emphasis on chemistry, seawater properties, waves, tides, nutrient cycling etc makes this programme distinctive from both Marine Biology and Marine Zoology

<b>Programme regulations (link to on-line version)</b>
<a href="http://www.ncl.ac.uk/regulations/programme/">http://www.ncl.ac.uk/regulations/programme/</a>

<b>13 Criteria for admission</b>
<p><i>Entry qualifications</i></p> <p>GCSE Mathematics (minimum grade B) required.</p> <p>A-Level Subjects and Grades AAB-ABB including Biology or Human Biology and another science subject from: Chemistry, Mathematics, Physics, Geography, Geology, Environmental Science, Psychology, IT, PE and Design &amp; Technology. General Studies and Critical Thinking are excluded. Chemistry preferred at A/AS level but not essential.</p> <p>Alternative entry qualifications Scottish Qualifications AAABB-AA BBB at Higher Grade including two science subjects from: Chemistry, Mathematics, Physics, Geography, Geology, Environmental Science, Psychology, IT, PE and Design &amp; Technology. Advanced Higher Biology or Human Biology is preferred. Chemistry desirable at Higher Grade but not essential.</p> <p>International Baccalaureate 34-35 points preferably including Biology at Higher Level Grade 6. Chemistry preferred at Higher Level but not essential. Mathematics or Mathematical Studies and Chemistry required at Standard Level grade 5 if not offered at Higher Level.</p> <p>World-wide qualifications equivalent to 'A' levels accepted. Full details are available at <a href="http://www.ncl.ac.uk/undergraduate/degrees/c161/entryrequirements/">http://www.ncl.ac.uk/undergraduate/degrees/c161/entryrequirements/</a></p> <p><i>Admissions policy/selection tools</i></p> <p>To admit candidates from a wide range of backgrounds and ages, from any Country in the world, who are well qualified for the degree course.</p> <p><i>Non-standard Entry Requirements</i></p> <p>All non-standard applicants are invited for an informal discussion with the Admissions Tutor and Degree Programme Director to ensure that they have the background that will adequately prepare them for the degree course.</p> <p><b>PARTNERS scheme</b> The Marine Biology and Oceanography programme is involved in the Newcastle PARTNERS Programme. The PARTNERS Programme is intended to support students who definitely wish to study at Newcastle University. The PARTNERS offer requires students to</p> <ul style="list-style-type: none"><li>• successfully complete the Assessed Summer School</li><li>• achieve specific grades in their A/As levels/AVCE/National Diploma course</li></ul> <p>These grades will be slightly lower than the normal offer for the Marine Biology and Oceanography degree programme to take account of the extra work they do for the Assessed Summer School. The PARTNERS offer for this degree is BBB-BBC.</p> <p><i>Additional Requirements</i> None</p> <p><i>Level of English Language capability</i> IELTS 6.5 or equivalent.</p>

## 14 Support for Student Learning

The Student Services portal provides links to key services and other information and is available at: <http://www.ncl.ac.uk/students/>

### *Induction*

During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University's principle support services and general information about the School and their programme, as described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. The International Office offers an additional induction programme for overseas students.

### *Study skills support*

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects.

Numeracy support is available through Maths Aid and help with academic writing is available from the Writing Development Centre (further information is available from the Robinson Library).

### *Academic and Pastoral support*

Each undergraduate and taught postgraduate student will be assigned a personal tutor.\* A personal tutor is one part of a wider network of advice and guidance available to students to support their personal and general academic development. The module leader acts as the first point of contact for subject-specific academic advice. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Student-Staff Committee, and/or at the Board of Studies. Within the academic unit, students may also receive additional academic and pastoral advice from a range of other student-facing staff including degree programme directors, dissertation/project supervisors, and administrative support staff.

\*Arrangements may vary for students taking special types of provision.

The University also offers a wide range of institutional services and support upon which students can call, such as the Writing Development Centre, Careers Service and Student Wellbeing Service. This includes one-to-one counselling and guidance or group sessions / workshops on a range of topics, such as emotional issues e.g. stress and anxiety, student finance and budgeting, disability matters etc. There is specialist support available for students with dyslexia and mental health issues. Furthermore, the Student Union operates a Student Advice Centre, which can provide advocacy and support to students on a range of topics including housing, debt, legal issues etc.

### *Support for students with disabilities*

The University's Disability Support team provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies.

### *Learning resources*

The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities.



All new students whose first language is not English are required to take an English Language Proficiency Test. This is administered by INTO Newcastle University Centre on behalf of Newcastle University. Where appropriate, in-session language training can be provided. The INTO Newcastle University Centre houses a range of resources which may be particularly appropriate for those interested in an Erasmus exchange.

## **15 Methods for evaluating and improving the quality and standards of teaching and learning**

### *Module reviews*

All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the Board of Studies and/or the School Teaching and Learning Committee. Student opinion is sought at the Student-Staff Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Learning, Teaching and Student Experience Committee.

### *Programme reviews*

The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Learning, Teaching and Student Experience Committee. The FLTSEC takes an overview of all programmes within the Faculty and reports any Faculty or institutional issues to the University Learning, Teaching and Student Experience Committee.

### *External Examiner reports*

External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Learning, Teaching and Student Experience Committee. External Examiner reports are shared with institutional student representatives, through the Student-Staff Committee.

### *Student evaluations*

All modules and stages\* are subject to review by student questionnaires. Informal student evaluation is also obtained at the Student-Staff Committee, and the Board of Studies. The National Student Survey is sent out every year to final-year undergraduate students, and consists of a set of questions seeking students' views on the quality of the learning and teaching. The results from student surveys are considered as part of the Annual Monitoring and Review of the programme and any arising actions are captured at programme and School / institutional level and reported to the appropriate body.

\*With the exception of intercalating years and the final stages of undergraduate programmes.

### *Mechanisms for gaining student feedback*

Feedback is channelled via the Student-Staff Committee and the Board of Studies.

### *Faculty and University Review Mechanisms*

Every six years degree programmes in each subject area undergo periodic review. This involves both the detailed consideration of a range of documentation, and a review visit by a review team (normally one day in duration) which includes an external subject specialist and a student representative. Following the review a report is produced, which forms the basis for a decision by University Learning, Teaching and Student Experience Committee on whether the programmes reviewed should be re-approved for a further six year period.

### *Accreditation reports*

### *Additional mechanisms*

## 16 Regulation of assessment

### *Pass mark*

The pass mark is 40 (Undergraduate programmes)

### *Course requirements*

Progression is subject to the University's Undergraduate Progress Regulations and Undergraduate Examination Conventions. In summary, students must pass, or be deemed to have passed, 120 credits at each Stage. Limited compensation up to 40 credits and down to a mark of 35% is possible at each Stage and there are re-assessment opportunities, with certain restrictions.

### *Weighting of stages*

The marks from Stages 2 and 3 will contribute to the final classification of the degree  
The weighting of marks contributing to the degree is as follows: Stage 2, 25%; Stage 3, 75%.

### *Common Marking Scheme*

The University employs a common marking scheme, which is specified in the Undergraduate Examination Conventions, namely

	<b>Modules used for degree classification (DC)</b>	<b>Modules not used for degree classification</b>
<40	Fail	Failing
40-49	Third Class	Basic
50-59	Second Class, Second Division	Good
60-69	Second Class, First Division	Very Good
70+	First Class	Excellent

### *Role of the External Examiner*

An External Examiner, a distinguished member of the subject community, is appointed by Faculty Teaching and Learning Committee, after recommendation from the Board of Studies. The External Examiner is expected to:

- See and approve assessment papers
- Moderate examination and coursework marking
- Attend the Board of Examiners
- Report to the University on the standards of the programme

In addition, information relating to the programme is provided in:

The University Prospectus: <http://www.ncl.ac.uk/undergraduate/>

The School Brochure: <http://www.ncl.ac.uk/marketing/services/print/publications/ordering/>

Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

The Degree Programme Handbook:

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

## Annex

### Mapping of Intended Learning Outcomes onto Curriculum/Modules

[illegible]

		Intended Learning Outcomes			
Module	Type	A	B	C	D
MST1101	Comp	1, 2, 3, 4	1, 4	2	1, 3
MST1102	Comp	1, 3	1, 4	2	1, 3
MST1103	Comp	1 2, 3, 4	1, 4	2	1, 3
MST1104	Comp	1, 2, 3,	1, 4	2, 3, 4, 5	1, 2, 3, 4, 5
MST2101	Comp	1, 2, 3, 4	1, 2, 4	2, 4	1, 3, 6, 7
MST2102	Comp	1, 2, 3, 4	1, 2, 4	2, 4	1, 3, 6, 7
MST2103	Comp	1, 2, 3, 4	1, 2, 3, 4, 5	1, 2, 4, 5	1, 2, 3, 4, 5, 6, 7, 8, 9
MST2105	Comp	1, 2, 3, 4	1, 2, 3, 4, 5,	1, 2, 3, 4, 5	1, 2, 3, 4, 5, 6, 8
MST3101	Comp	1, 2, 3, 4	1, 2, 4, 5	1, 2, 4, 5	1, 3, 6, 7, 8, 9
MST3103	Comp	1, 2, 3, 4	1, 2, 4, 5	1, 2, 4, 5	1, 3, 6, 7, 8, 9
MST3106	Opt	1, 2, 3, 4	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5, 6, 7, 8, 9
MST3107	Opt	1, 2, 3, 4	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5, 6, 7, 8, 9

