

PROGRAMME SPECIFICATION

1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	BSc (Hons)
4	Programme Title	Biology (Ecology and Environmental)
5	UCAS/Programme Code	C180
6	Programme Accreditation	Not applicable
7	QAA Subject Benchmark(s)	Biosciences
8	FHEQ Level	Level 6
9	Date written/revised	May 2011

10 Programme Aims

- 1 Develop a thorough knowledge and understanding of organisms, including microbes, plants and animals and how they interact with their environment;
- 2 Introduce the main disciplines underpinning a full understanding of biology, including molecular biology, biochemistry, cell biology, physiology, genetics, ecology, evolution and systematics;
- 3 Progressively develop the laboratory and field work skills required for the study of ecology and environmental biology;
- 4 Provide a curriculum enhanced by an active research environment that engenders critical thinking;
- 5 Stimulate a wide interest in biological topics including an awareness of how current developments may affect the present and future well-being of society and the planet;
- 6 Provide graduate-level training in key skills, including the ability to communicate in a variety of contexts, utilise IT and library resources efficiently, process and interpret quantitative data, manage time effectively, and work both independently and in teams;
- 7 Provide a flexible programme covering all aspects of biology (with an ecological and environmental emphasis), incorporating the elements specified in the benchmark statement for Biosciences issued by the Quality Assurance Agency;
- 8 Provide a curriculum which meets the criteria for B.Sc. Honours Degree level in the Framework for Higher Education Qualifications issued by the Quality Assurance Agency.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas

Knowledge and Understanding

On completing the programme students should have:

- A1 A knowledge of biology from the organism to ecosystem levels.
- A2 An understanding of the functioning of plants, animals and micro-organisms, with particular reference to their role in ecosystems and environmental adaptation and responses to stress.
- A3 A knowledge of the diversity of living organisms and the principles underlying classification, with an understanding of evolutionary processes.
- A4 An understanding of ecology, with emphasis on population and community responses to pollution, climate change and other types of human impact and the application of computer modelling.

A5	A knowledge of interactions between living organisms as symbionts, commensals, predators, parasites and pathogens.
A6	An understanding of genetics at both the population and molecular levels.
A7	An appreciation of the broader significance and impact of recent advances in biological science on contemporary society and the future.

Teaching and Learning Methods

Teaching Strategy

A1 – A6 are principally imparted through lectures, enhanced and supplemented with co-ordinated practical work or additional learning delivered by means of appropriate CAL tasks, written assignments and seminars. Many of the lecture courses at Stage 3 are crucial in delivering A7 as they provide knowledge and insights at the 'cutting edge'. A specialised module (BIO3015 Social Impact of Biology) addresses the social and ethical aspects involved in A7.

Learning Strategy

Throughout the taught component of the course, students are encouraged and expected to engage in independent study, and are supported in this by the provision of reading lists, handouts and direction to many library and web-based resources (including e-journals).

Assessment Strategy

Assessment Strategy

Assessment is partly by unseen written examinations (essays, short answers, data interpretation, missing words, multiple choice) but also via coursework. Most modules at Stages 1 and 2 include some coursework, thus ensuring that elements of formative, as well as summative, assessment and a variety of assessment methods are employed. At Stage 3 the distribution of exam- and assignment-assessed work is more polarised between modules, although as at Stages 1 and 2, each form a major part of the whole stage 3 assessment.

The level of academic achievement required under these strategic objectives is consistent with the award of a B.Sc. Honours Degree according to the FHEQ guidelines.

Intellectual Skills

On completing the programme students should have acquired:

- B1 The ability to use the scientific method by formulating and testing hypotheses and to identify key data which allow such tests to be made.
- B2 The ability to interpret and effectively summarise quantitative data to test hypotheses, including statistical analysis and interpretation.
- B3 The ability to critically assess the value and limitations of existing information on a given subject and produce critical reviews of such information.

Teaching and Learning Methods

Teaching strategy

Scientific (cognitive, numerical and analytical) skills (B1, B2) are introduced at Stage 1, and more specifically in BIO1010 Biology in Action. These skills are further developed at Stage 2 in BIO2020 Experimental Design and Statistics for Biologists and reinforced at Stage 2 via practical classes and the associated preparation of laboratory reports. B3 is also specifically addressed in BIO1010 Biology In Action and BIO2020 Experimental Design and Statistics for Biologists. During Stage 3, B1-3 are all practiced in BIO3022 Residential Field Course and BIO3196 Research Project, whilst BIO3194 Biological Review Project and BIO3195 Biological Information Project are develop B3 skills.

Learning strategy

Students are encouraged to acquire B1-2 skills via BIO1010 Biology In Action. These skills are reinforced

repeatedly when preparing laboratory and field practical reports at Stage 2. At Stage 2 BIO2020 Experimental Design and Statistics for Biologists offers repeated opportunities for practice of B3. B1-3 are all reinforced again in full via BIO3022 Residential Field Course. Stage 3 BIO3196 Research Project requires students to design their own investigations and experiments (B1), analyse data yielded (B2), and appraising the quality of the data collected (B3). BIO3194 Biological Review Project and BIO3195 Biological Information Project focuses on B3.

Assessment Strategy

All intellectual skills are assessed by means of coursework reports and/or small team outputs such as posters or talks in Stages 1 and 2. At Stage 3 some or all of B1-3 (depending on topic) are also examined by means of the dissertation (BIO3194 Review BIO3195 Biological Information and BIO3196 Research Projects).

The level of academic achievement required under these strategic objectives is consistent with the award of a B.Sc. Honours Degree according to the FHEQ guidelines.

Practical Skills

On completing the programme students should have acquired:

- C1 Laboratory experimental and analytical skills, including the use of key equipment, instrument calibration, and recording measurements with appropriate precision.
- C2 The ability to use keys and field guides to identify plants and animals.
- C3 Appropriate field skills: how to observe, record, and sample plants and animals in the wild.

Teaching and Learning Methods

Teaching strategy

Laboratory skills (C1) are widely developed in practical components of subject specific modules, especially at Stage 2 and BIO3196 Research Project. The analytical and statistical aspects of B1 are addressed through a specialised modules in Stages 1 and 2 (BIO1010 Biology In Action; BIO2020 Experimental Design and Statistics for Biologists) and via the many laboratory and field classes in Stage 2, and in the Residential Field course (BIO3022) and research project (BIO3196) modules in Stage 3. The ability to develop identification (C2) and field skills (C3) are developed particularly by the compulsory field course modules: BIO2003 Field Identification Skills and BIO3022 Residential Field Course.

Learning strategy

Students are encouraged to acquire practical laboratory and field investigation skills (C1, C3) by monitoring attendance at all laboratory and field classes in Stages 1 and 2. Students can further develop their practical and statistical skills through their application in Stage 3 via BIO3022 Residential Field course and BIO3196 Research Project.

Assessment Strategy

All practical skills are assessed by means of coursework reports and/or small team outputs such as posters or talks in Stages 1 and 2. At Stage 3 some or all of C1-3 (depending on topic) are also examined by means of the dissertation (BIO3194 Review BIO3195 Biological Information and BIO3196 Research Projects).

The level of academic achievement required under these strategic objectives is consistent with the award of a B.Sc. Honours Degree according to the FHEQ guidelines.

Transferable/Key Skills

On completing the programme students should be able to:

- D1. Communicate technical information by means of clear written and spoken presentations, following

	the accepted conventions for scientific interchange.
D2.	Use library and IT sources efficiently and critically.
D3.	Plan and prioritise work activities in order to meet deadlines.
D4.	Work independently with initiative, and also synergistically in teams.

Teaching and Learning Methods

Teaching strategy

Management of workload in order to meet deadlines (D3) is promoted by means of a strict coursework timetable (students are encouraged to complete their own Gantt charts which are included in the Degree Programme Handbooks). All key skills (D1-4) are formally introduced in BIO1010 Biology In Action. Team-working skills (D4) are developed through supervised group exercises in the laboratory and field in Stage 2, and later via BIO3021 Residential Field Course.

Learning strategy

The learning of these skills by practice with feedback, together with formative and summative assessment, is embedded in the curriculum at all Stages and in the great majority of modules. There are also specific modules at each Stage that give explicit opportunities in this area. Students frequently submit reports based on their own laboratory and field work, conducted in teams or alone (D1, D4). Individual verbal presentations are assessed in BIO2020 Experimental Design and Statistics for Biologists and formative feedback is given (D1-2). The application of all these skills (D1-D4) is practiced at Stage 3 in BIO3021 Residential Field Course. Talks are required in addition to the dissertation as outputs from BIO3094 Review Project, and other media are routinely used to produce outputs for BIO3195 Biological Information Project.

Assessment Strategy

D1 and D2 are assessed repeatedly by means of coursework (laboratory and field work reports) at all three Stages. The ability to critically assess and review existing information is specifically tested in BIO1010 Biology In Action and in the two Stage 3 project modules (BIO3195/6).

The level of academic achievement required under these strategic objectives is consistent with the award of a B.Sc. Honours Degree according to the FHEQ guidelines.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The following principles have been followed within this degree programme with respect to its overall structure:

- **Stage 1** modules are broad in scope and non-overlapping in subject area. They are chosen so that all Stage 1 students receive the same solid grounding in all fundamental areas underpinning biology, regardless of entry qualifications. Study and reading patterns are quite strongly directed, but students can choose one or two modules (20 credits) from a selection of three, in addition to the nine compulsory modules (100 credits).
- **Stage 2** modules are more specialised, relating more closely to the specifics of the subject. As such, they are shared with fewer other degree programmes. In general, study is more self-driven than at Stage 1, and students are encouraged to develop a more individual and original approach to reading and report writing. Some modules are based around techniques, so that at the end of Stage 2, students should be competent to carry out selected species identifications, physiological and ecological analyses. Students will also have had some experience of critically reviewing research literature, experimental design and data analysis, and the presentation of written and spoken reports resulting from their own work. The curriculum consists of ten compulsory modules (100 credits) and four optional ones (20 credits selected from 40).
- **Stage 3** modules are yet more specialised and research led. Much time is taken up with individual research work in the laboratory, library or field. Students are expected to apply the techniques and knowledge that have been learnt in earlier Stages to specific tasks. Work should be highly self-

directed, and revolve around the study of recent research-based literature. High quality work at this level should combine all the knowledge and skills objectives listed in the preceding sections. The curriculum consists of eight compulsory modules (100 credits) and five optional ones (20 credits selected from 50) chosen to give students a thorough background in environmental biology and ecology.

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

This ecological and environmental Degree Programme, as well as giving a sound background in general biology, focuses on how biological species interact, both physiologically and ecologically, with each other and their environment. Along with a core of modules dealing with organisms as functioning units, students may take optional modules dealing with ecology to provide them with the knowledge and insights needed to study and manage threatened species and ecosystems, or to control pests and diseases. Alternatively, students can select options with a more cellular and molecular emphasis. The general biology programme is intended to give a broad overview of subject by making a broad range of topics available for selection. During the degree programme they develop skills in practical laboratory and field work, and the critical analysis and communication of scientific information.

This degree programme allows students to undertake an academically coherent study of biology, whilst being able to select topics centred on ecology and conservation biology.

Programme regulations (link to on-line version)

Go to <http://www.ncl.ac.uk/regulations/docs/> and follow links for 2009/10 Degree Programme Regulations, SAGE Faculty, School of Biology, Biology C100

13 Criteria for admission

Go to <http://www.ncl.ac.uk/undergraduate/course/C100/entrance-requirements>

14 Support for Student Learning

Induction

During the first week of the first semester each year, 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.

Help with academic writing is available from the Writing Centre.

Academic support

The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff-Student Committee, and/or at the Board of Studies.

Pastoral support

All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. In addition the University offers a range of support services, including one-to-one counselling and guidance or group sessions/workshops on a range of topics, such as 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 Union Society operates the 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 Service provides help and advice for disabled students - 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 specialist 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 and IT 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 review and innovations

Changes to existing modules and the introduction of new ones are considered at the School Teaching and Learning Committee and at the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

Programme reviews

The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee.

External Examiner reports

External Examiner reports are considered as Reserve Business by the Board of Studies. The Board responds to these reports through Faculty Teaching and Learning Committee. External

Student evaluations and feedback

All modules, and the degree programme, are subject to review via student questionnaires. Student opinion is also obtained via the Staff-Student Committee, and the Board of Studies. Feedback is also obtained via Module Leaders and the Biology Teaching Support Office. The National Student Survey is sent out every year to final-year undergraduate students, and consists of a set of questions seeking the students' views on the quality of the learning and teaching in their HEIs. With reference to the outcomes of the NSS and institutional student satisfaction surveys undertaken at Stages 1 and 2, actions are taken at all appropriate levels by the institution.

Faculty and University Review Mechanisms

The programme is subject to the University's Internal Subject Review process. Every five years degree programmes in each subject area are subject to periodic review. This involves both the detailed consideration of a range of documentation, and a two-day visit by a review team which includes an external subject specialist in addition to University and Faculty Teaching and Learning Committee representatives. Following the review a report is produced, which forms the basis for a decision by University Teaching and Learning Committee on whether the programmes reviewed should be re-approved for a further five year period. An action plan is framed as necessary and progress towards fulfilling its objectives within a specified timeframe is monitored by Faculty Teaching and Learning Committee.

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 resit opportunities, with certain restrictions.

Weighting of stages

The marks from Stages 2 & 3 will contribute to the final classification of the degree
The weighting ratio for marks at Stages 2:3 is 25:75

Common Marking Scheme

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

<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 examination papers
- Moderate examination and coursework marking
- Attend the Board of Examiners
- Report to the University on the standards and delivery of the programme

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

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

The School Brochure (contact Biology.TSO@ncl.ac.uk)

The University Regulations (see <http://www.ncl.ac.uk/calendar/university.regs/>)

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 opportunities provided. The accuracy of the information contained here is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

**Programme Specification Annex for C180 Biology (Ecology and Environmental)
(20010/11)**

Mapping of Intended Learning Outcomes onto Curriculum/Modules

Achievement of specific Intended Learning Outcomes (A-D) occurs through provision in the **compulsory** and *optional* modules specified for each Stage in the Degree Programme Regulations, as follows:

Code	Type	A	B	C	D
Stage 1					
BIO1013	Compulsory	1,2,6	2,3		1
BIO1001	Compulsory	1,2	2	1	1,2,3
BIO1002	Compulsory	1,3,5		1	1,2
BIO1003	Compulsory	1-5	2	1	1,2,3,4
BIO1004	Compulsory	1-3,5	2	1	1,2,3,4
BIO1005	Compulsory	1,3,4,6	1,3		1,2
BIO1006	Compulsory	1,4,5	1,2	3	1,3,4
BIO1010	Compulsory	1	2	1	1,2,3,4
BIO1019	Compulsory	1,2	1,2	1	1,3,4
BIO1007	Optional	1,2,3,4,5		1,2,3	
PSY1006	Optional	1,2	1		1
ACE1022	Optional	1,4,5	2	2	1,3,4
Stage 2					
BIO2002	Compulsory	1,4,7	2,3		1
BIO2003	Compulsory			2,3	2,4
BIO2004	Compulsory	1-5	1,2	1	1,2,3,4
BIO2007	Compulsory	1, 4		1	1
BIO2008	Compulsory	1,3,4,6	1,2	1,3	1,3,4
BIO2009	Compulsory	1,4	2		1,2
BIO2010	Compulsory	1,2,6	3		1,2
BIO2014	Compulsory	1,2	2	1	1,2,3,4
BIO2018	Compulsory	1,2,4,7	2,3		1-4
BIO2020	Compulsory		1,2	1	1,2,3,4
ACE2032	Optional	1,2,4	1,2	1	1,2,4
BIO2006	Optional	1,2,4	1,2	1	1,2
BIO2017	Optional	1-5,7	2	1	1,2,3,4
MST2013	Optional	1,2,4	1,2	1	1,2
BIO2015	Optional	1,2,6,7		1	1,3,4
Stage 3					
BIO3001	Compulsory	1,2	3		1,2,4
BIO3002	Compulsory	1,4	3		1
BIO3003	Compulsory	1,4	3		1,2,4
BIO3015	Compulsory	7	3		1
BIO3022	Compulsory	1,4,5	1,2,3	2,3	1,2,3,4
BIO3031	Compulsory	1,4,7	3		1-4
BIO3194 or	Compulsory**	all	2,3		1,2,3,4
BIO3195 or	Compulsory**	all	2,3		1,2,3,4
BIO3196	Compulsory**	all	1-3	all	1,2,3,4
ACE3064	Optional	1,2,4,7	2	1	1,2
BIO3004	Optional	1,2,4,7	3		1,2,3,4
BIO3006	Optional	1,2,4,5,7			1
BIO3009	Optional	1,4,5,7	3		1,2
BIO3024	Optional	2,3,4,7	3	2,3	1,2,3,4

Notes: ** Students must select one from BIO3194, BIO3195 or BIO3196.