

## PROGRAMME SPECIFICATION



1	<b>Awarding Institution</b>	Newcastle University
2	<b>Teaching Institution</b>	Newcastle University
3	<b>Final Award</b>	BSc
4	<b>Programme Title</b>	Biology
5	<b>UCAS/Programme Code</b>	CF11 Biology and Chemistry, CC18 Biology and Psychology.
6	<b>Programme Accreditation</b>	N/A
7	<b>QAA Subject Benchmark(s)</b>	Biosciences
8	<b>FHEQ Level</b>	Level 6
9	<b>Date written/revised</b>	February 2011

### 10 Programme Aims

- 1 To develop a student's knowledge and understanding of the fundamentals of Biology and associated practical and field skills.
- 2 To introduce and develop disciplines underpinning the understanding of biology, such as biochemistry, genetics, statistical analysis and molecular biology.
- 3 The course will progressively develop student's skills and interests as appropriate for the chosen specialist options. By Stage 3 there will be opportunity to study more specialised aspects of the subject and carry out independent investigative and analytical studies in greater depth.
- 4 To provide a Biology curriculum enhanced by an active research environment that will encourage critical thinking and provide an introduction to contemporary genomics approaches to biology.
- 5 To stimulate an informed interest in Biology and engender an awareness of how current developments in biology affect the overall well being of our planet and society.
- 6 To provide a flexible programme which meets much of the Quality Assurance Agency Benchmark Statements for 'Biosciences' with an emphasis either on molecular and microbial aspects (JH Biol/Chem), organismal biology or ecology and behaviour (JH Biol/Psych).
- 7 To lead to a qualification which meets the criteria of the Honours level of the Framework for Higher Education Qualifications.
- 8 To provide an environment within which students can enjoy and be enthused by their learning experience.
- 9 To raise awareness of new technologies and the skills and aptitudes needed for the development of a wide variety of careers involving biological sciences.

### 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 the benchmark statements for Organismal Biology.

#### Knowledge and Understanding

On completing the programme students should:

- A1 Demonstrate an understanding of the functioning of animals at physiological, cellular, biochemical and molecular levels, with particular reference to environmental adaptations.
- A2 Demonstrate a knowledge of the diversity of living organisms and the biological processes that have evolved amongst diverse groups.
- A3 Demonstrate an understanding of molecular genetics and the fundamental advances that have arisen from genome sequencing and genomic studies

A4	Demonstrate an understanding of <i>either</i> ecology and behaviour, with emphasis on biological and population responses to pollution and climate change and to conservation issues, organismal biology, with an emphasis on physiology, cellular and molecular biology <i>or</i> molecular, microbial and biotechnology applications.
A5	Demonstrate an awareness of selected current developments in biology and an appreciation of the broader impact these may have on society and the ability to apply such knowledge.

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

##### *Teaching Strategy*

A1 – A3 are principally imparted through lectures, which may be enhanced and supplemented with co-ordinated practical work and additional self-paced learning delivered by means of appropriate CAL tutorials.

A4 is delivered principally through lectures in two optional streams.

A5 is delivered mainly at Stage 3, where modules provide knowledge at the 'cutting edge' in the field and particularly in the module on Social Impacts of Biology.

##### *Learning Strategy*

Throughout the taught component of the course, students are encouraged and expected to engage in independent reading, and are supported in this by the provision of reading lists, supporting material made available via the Blackboard VLE, handouts and access to library and other web-based resources. A key Stage 1 and 2 text, *Life: The Science of Biology*, provides an overall framework for learning that is particularly important for JH students, who may not have as comprehensive subject coverage as SH students.

#### **Assessment Strategy**

Assessment is partly by way of unseen written examinations (essay-type questions, short answer questions, problem-solving questions as appropriate) and partly by way of coursework. Most modules at stages 1 and 2 include 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-assessed and in-course assessed work is more polarised between modules, though as at stages 1 and 2 each form a major part of the whole stage 3 assessment.

#### **Intellectual Skills**

On completing the programme students should be able to:

- B1 Demonstrate 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 Demonstrate the ability to interpret and effectively summarise quantitative data including appropriate interpretation and statistical analysis.
- B3 Demonstrate 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**

Some cognitive skills are introduced at stage 1, mainly B2, but for example the concept of hypothesis testing (part of B1) is introduced in the statistical component of the Psychology programme. These are then further developed at stages 2 and 3 particularly during project work within the fieldcourse or laboratory workshop modules (B1-3).

##### *Learning strategy*

Students are encouraged to acquire B1-B2 skills in the statistical and experimental modules at Stage 1 and 2. They then have to implement these skills as a key part of the the fieldcourse or laboratory workshop modules. The critical B3 skills are also practiced in the process, and in the course work and preparations for formal examinations for other stage 3 modules.

<b>Assessment Strategy</b>
Cognitive skills B1 and B2 are mainly assessed by means of coursework (laboratory reports, workbooks). The ability to critically assess and review existing information is tested by the major library project that are undertaken during Stage 3 (B3) and is also tested to varying extents in formal examinations for specific Stage 3 modules.
<b>Practical Skills</b>
<p>On completing the programme students should be able to:</p> <p>C1 Demonstrate laboratory and analytical skills including statistical methods, the use of key equipment, instrument calibration and recording measurements with appropriate precision.</p> <p>C2 Demonstrate appropriate field and laboratory skills: how to observe, record, and sample in the wild and in the laboratory and design and conduct laboratory experiments.</p>
<b>Teaching and Learning Methods</b>
<p><i>Teaching strategy</i></p> <p>Laboratory skills (C1) are widely developed in practical components of subject specific modules. The analytical and statistical aspects of C1 are addressed through specialised modules in stages 1 and 2 and are an important component in many laboratory classes (stages 1 and 2) and in field and laboratory workshop modules (stage 3). The ability to develop key laboratory and/or fieldwork skills (C2) are developed via fieldcourse and laboratory workshop modules which are run during the summer break after Stage 2.</p> <p><i>Learning strategy</i></p> <p>Students are encouraged to acquire practical laboratory skills (C1) by their monitored attendance at laboratory classes. Students can further develop the practical and statistical skills they have acquired, through their application in field and laboratory workshops.</p>
<b>Assessment Strategy</b>
All subject-specific skills are assessed by means of coursework reports, posters, and/or group project work, usually undertaken within the modular context.
<b>Transferable/Key Skills</b>
<p>On completing the programme students should be able to:</p> <p>D1 Demonstrate the ability to communicate by means of well-prepared, clear and confident presentations, and concisely written documents and follow the accepted conventions for scientific communication.</p> <p>D2 Demonstrate the ability to use library and other information sources efficiently and appropriately.</p> <p>D3 Demonstrate the ability to use IT resources skilfully and appropriately.</p> <p>D4 Demonstrate the ability to plan, organise and prioritise work activities in order to meet deadlines.</p> <p>D5 Demonstrate the ability to work independently, with initiative, and also in teams.</p> <p>D6 Demonstrate the ability to solve problems and produce reasoned solutions.</p>

## Teaching and Learning Methods

### *Teaching strategy*

Key skills are formally taught in a number of specific compulsory modules which cover presentation and scientific writing skills (D1); library and other information skills (D2); and IT skills (D3). Problem solving skills (D6) are encouraged in many laboratory and field work classes at all stages. Management of workload in order to meet deadlines (D4) is promoted by means of a strict coursework timetable (students are encouraged to complete their own Gantt charts which are included in the course handbooks), whilst teamworking skills (D5) are developed by group exercises in a number of modules (e.g. in the laboratory and fieldcourse modules). Many of these and other modules also provide opportunities for students to improve their problem solving abilities (D6) and to extend their communication, library, IT, and time management skills (D1-D4).

### *Learning strategy*

The learning of these skills by practice with or without assessment is embedded in the degree at all Stages and in the great majority of modules, though there are also specific modules at each stage that either teach or practice many of these skills. Students must submit regular reports on their laboratory work, as well as dissertations and literature reviews; individual verbal presentations are assessed; formative feedback is given. The development of D1-6 is a key part of project and fieldwork activities.

## Assessment Strategy

Some key skills are specifically assessed in the specialised skills or library project modules, but many are indirectly assessed through course work and examinations in most modules. Communication (D1), library (D2) and IT (D3) skills, and the ability to meet deadlines (D4) are indirectly assessed by coursework (scientific/technical reports, a poster, literature reviews, essays etc.). Similarly, ability to work independently (D5) implicitly influences the level of achievement in many assessed components; initiative (C5) is implicitly assessed in project activities. Ability to work in teams is assessed indirectly where students work in groups in some laboratory and fieldwork classes.

## 12 Programme Curriculum, Structure and Features

### Basic structure of the programme

#### A. Programme Structure and Features

This is a three-year full-time modular programme consisting of 120 taught credits at each Stage (year). 10 credits are equivalent to 100 hours of study time (contact time and private study).

**At Stage 1** the emphasis is on ensuring biologists receive a broadly based introduction to the subject, encompassing a wide range of subject areas including the core components of genetics, biochemistry and statistical methods.

**At Stage 2** the compulsory modules include fundamental topics such as an introduction to molecular biology and genomics and other modules related specifically to the degree programme or stream. Two streams are available for JH Biology & Psychology that emphasise either functional animal biology or behaviour and ecology, each stream being continued at Stage 3. Biology & Chemistry students focus on functional biology with an emphasis on microbiology, biotechnology and molecular biology.

**At Stage 3** compulsory modules comprise Genomics and Social Impact of Biology. JH Biology & Psychology students again select either the Animal Behaviour and Ecology stream or the Functional Biology of Animals stream and can choose either the laboratory workshop or the residential field course depending on their subject combination. JH Biology & Chemistry students develop molecular, microbial and/or biotechnology aspects and may choose the laboratory workshop option.

<b>Key features of the programme (including what makes the programme distinctive)</b>
<ul style="list-style-type: none"> <li>• Stage 3 residential fieldcourse or laboratory workshop modules which involve extended project work that develop skills in experimental design, independent study, analysis and written presentation.</li> <li>• Newcastle lies on the edge of Northumberland National Park and close to several internationally important National Nature Reserves, including the Farne Islands and Holy Island.</li> <li>• Access to Botanic Garden and Natural History museum facilities.</li> </ul>
<b>Programme regulations (link to on-line version)</b>
<a href="http://www.ncl.ac.uk/regulations/">http://www.ncl.ac.uk/regulations/</a>

<b>13 Criteria for admission</b>
Dealt with in overarching Joint Honours Degree Programme Specification.

<b>14 Support for Student Learning</b>
<p><i>Induction</i></p> <p>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.</p> <p><i>Study skills support</i></p> <p>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.</p> <p>Numeracy support is available through Maths Aid.</p> <p>Help with academic writing is available from the Writing Centre.</p> <p><i>Academic support</i></p> <p>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.</p> <p><i>Pastoral support</i></p> <p>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 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 Union Society operates a Student Advice Centre, which can provide advocacy and support to students on a range of topics including housing, debt, legal issues, etc.</p> <p><i>Support for students with disabilities</i></p> <p>The University's Disability Support Service 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.</p>

#### *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 School Teaching and Learning Committee and at the Board of Studies. Student opinion is sought at the Staff-Student Committee and/or 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 by the Board of Studies. The Board responds to these reports through Faculty Teaching and Learning Committee. External Examiner reports are shared with institutional student representatives, through the Staff-Student Committee.

#### *Student evaluations*

All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Staff-Student 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 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 actions are taken at all appropriate levels by the institution.

#### *Mechanisms for gaining student feedback*

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

#### *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 review visit by a review team which includes an external subject specialist in addition to University and Faculty 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.

#### *Accreditation reports*

This programme is not accredited by any professional body.

### *Additional mechanisms*

#### Mechanisms for review:

- Module questionnaires issued in alternate years: students evaluate every module by completing a questionnaire which is analysed and then considered by the Board of Studies.
- Teaching questionnaires issued in alternate years: issued to students on every module to comment on the teaching quality of academic staff, the results then being used in staff appraisals.
- Degree programme stage questionnaire issued annually to students on all stages of the programme; results are analysed by the Board of Studies.
- External Examiners' Reports.
- Annual review of progression statistics, degree class achievement, employment.
- Biennial Degree Programme Review.
- Surveys of recent graduates.
- Internal Subject review.
- QAA review.

#### Committees responsible for monitoring quality and standards

- Board of Studies, whose responsibility is to oversee quality and standard of the programme
- Staff/Student Committee
- Board of Examiners
- Faculty Teaching Committee
- University Teaching Committee

#### Mechanisms for feedback to students on matters of quality and standards:

- Staff/Student Committee
- Student representation on Boards of Studies
- Circulation via e-mail to all students of Staff-Student Committee minutes
- Stage meetings with DPD.

## **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 and 3 will contribute to the final classification of the degree  
The weighting of marks contributing to the degree for Stages 2 and 3 is 1:1

### *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 examination 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 (see <http://www.ncl.ac.uk/undergraduate/> or <http://www.ncl.ac.uk/postgraduate/>)

The School Brochure (contact [enquiries@ncl.ac.uk](mailto:enquiries@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 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

#### BSc Biology and Psychology

Module	Type	Intended Learning Outcomes			
		A	B	C	D
ACE1013	Compulsory	1,3,4		1,2	1-5
BIO1019	Compulsory	1,3		1,2	1-6
MAS1401	Compulsory		1,2	1	3-6
BIO1005	Compulsory	1,2,3,4	3		2-5
BIO1006	Compulsory	2,3,4	3	2	2-5
	Optional	1,2,4	3		1-5
	Optional	1,2,4			1-5
BIO2007	Compulsory	1,2,4			1-5
BIO2008	Optional	2,3	1,2,3	1,2	1-6
	Optional	2,4	2,3	1	1-5
BIO2010	Optional	1,2,3			1-4
BIO2014	Optional	1,4			1-4
BIO2016	Optional	1,2,4			1-4
BIO2019	Optional	1,2,4			1-5
BIO3015	Compulsory	4,5	1,3		1,2,4-6
BIO3019	Optional	3,5			1-6
BIO3021	Optional	4,5	1,2,3	1,2	1-6
	Optional	4,5	1,2,3	1,2	1-6
BIO3001	Optional	1,4		2	1-6
	Optional	4	1,2,3	1	1-5
	Optional	4	2,3	1	1-5
BIO3006	Optional	1,2,4			1-5
	Optional	4,5	2,3	2	1-6
BIO3014	Optional	2,3,4			1-5
BIO3016	Optional	1,4			1-5

Optional modules to add BIO2013, ACE3049

#### BSc Biology and Chemistry

	Intended Learning Outcomes
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Module	Type	A	B	C	D
ACE1013	Compulsory	1,3,4		1,2	1-5
BIO1019	Compulsory	1,3		1,2	1-6
MAS1401	Compulsory		1,2	1	3-6
BIO1001	Compulsory	1,3,4	2	1,2	2-5
BIO1004	Compulsory	1-4			2-5
BIO2010	Compulsory	1,2,3			1-4
BIO2015	Compulsory	1,3,4		1,2	2-5
BIO2017	Compulsory	1,3,4		1,2	2-5
BIO2005	Optional	1-4		1,2	2-5
	Optional	1,2,4			1-5
BIO2014	Optional	1,4			1-4
BIO2016	Optional	1,2,4			1-4
BIO2019	Optional	1,2,4			1-5
BIO3015	Compulsory	4,5	1,3		1,2,4-6
BIO3019	Compulsory	3,5			1-6
	Optional	1,4		2	1-6
	Optional	4	1,2,3	1	1-5
BIO3006	Optional	1,2,4			1-5
	Optional	2,3,4			1-5
BIO3016	Optional	1,4			1-5
BIO3018	Optional	1-4	2,3	1,2	1-5
BIO3020	Optional	1-4	3	1,2	1-5
BIO3021	Optional	4,5	1,2,3	1,2	1-6
BIO3027	Optional	1,3,4		1,2	2-5
	Optional	1,3,4		1,2	2-5

Optional module to add BIO2018, BIO3031