

**PROGRAMME SPECIFICATION**

<b>1</b>	<b>Awarding Institution</b>	Newcastle University
<b>2</b>	<b>Teaching Institution</b>	Newcastle University
<b>3</b>	<b>Final Award</b>	BSc / MBiol
<b>4</b>	<b>Programme Title</b>	Bachelor of Science with Honours in Biology Bachelor of Science with Honours in Biology with Placement Year Bachelor of Science with Honours in Biology with International Study Year Master of Biology with Honours in Biology Master of Biology with Honours in Biology with Placement Year Master of Biology with Hons in Biology with International Study Year
<b>5</b>	<b>UCAS/Programme Code</b>	C100 1143U 1573U C103 1140U 1842U
<b>6</b>	<b>Programme Accreditation</b>	Not applicable
<b>7</b>	<b>QAA Subject Benchmark(s)</b>	Biosciences
<b>8</b>	<b>FHEQ Level</b>	Level 6 / Level 7
<b>9</b>	<b>Date written/revised</b>	September 2024

**10 Programme Aims**

1. Develop a thorough knowledge and understanding of organisms, including microbes, plants and animals;
  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 biology;
  4. Provide a curriculum enhanced by an active research environment that engenders critical thinking;
  5. Stimulate a wide interest in biology 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 ways and 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, incorporating the elements specified in the benchmark statement for Biosciences issued by the Quality Assurance Agency;
  8. Provide programme of study which meets the FHEQ at level 6 at the end of Stage 3 and the FHEQ at level 7 at the end of Stage 4.
- For students on the Placement Year programme:
9. Provide students with the experience of seeking and securing a position with an employer;
  10. Facilitate independent self-management and proactive interaction in a non-university setting;
  11. Provide a period of practical work experience that will benefit current academic study and longer term career plans;
  12. Enable students to ethically apply their knowledge and skills in the work place, reflect upon their development and effectively evidence and articulate their learning in relevant future settings.

For students on the International Study Year programme:

13. Offer students the opportunity to develop graduate attributes which increase employability, particularly communication and (where applicable) language skills, intercultural competencies, adaptability, resilience and global awareness.
14. Gain insight into international Higher Education and experience differences in academic approach and learning environment.
15. Provide the opportunity to experience new areas of study outside of their usual programme of study at Newcastle University.

## **11 Learning Outcomes**

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

### **Knowledge and Understanding**

On completing the programme students should have:

- A1. A knowledge of biology from the molecular to the ecosystem level
- A2. An understanding of the functioning of plants, animals and micro-organisms at the physiological, biochemical and molecular (genomic) levels
- A3. A knowledge of the diversity of living organisms and the principles underlying classification, with an understanding of evolutionary processes
- A4. An understanding of fundamental ecology and ecological responses to pollution, climate changes and other types of human impact
- 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 appreciate of the broader significance and impact of recent advances in biological science and contemporary society and the future.

For students on the Placement Year programme:

- A8. Apply personal and professional development strategies to prioritise, plan and manage their own skills, development and learning
- A9. Research, select and apply relevant knowledge aimed at enhancing their own skills and effectiveness in specific duties at their placement
- A10. Demonstrate an understanding of a work environment, how it function and their contribution to it
- A11. Relate their work based learning to other areas of personal development, including academic performance.

For students on the International Study Year programme:

- A12. Demonstrate the ability to adapt to different learning environments.

### **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 Stages 3 and 4 are crucial in delivering A7 as they provide knowledge and insights at the 'cutting edge'.

#### *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). Laboratory work, field observation, the writing of reports and the analysis and interpretation of collated data aid the development of understanding.

### **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 forms a major part of the whole stage assessment. Assessment at Stage 4 has a higher proportion of coursework, particularly through the research project.

### **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*

Cognitive skills (B1, B2) are introduced widely at Stage 1, and specifically via the study skills module Academic and Professional Skills for the Biosciences. These skills are further developed at Stage 2 through an experimental design and statistics module specifically for biologists and repeatedly rehearsed at Stage 2 via practical classes and the ensuing preparation of reports. B3 is also specifically addressed via the study skills and the experimental design and statistics modules. B1-3 are all practiced during the Stage 2 residential field course, its equivalent module Methods in Biotechnology, and the Stage 3 Biological Research Project, whilst the Biological Literature Review and the Biological Information Project are focused more on B3. At Stage 4, B1-B3 are all practised in the Research project.

#### *Learning strategy*

Students are encouraged to acquire B1-2 skills early via the study skills module. They then have to rehearse these skills repeatedly in preparing a variety of laboratory and field practical reports at Stage 2. At Stage 2 Experimental Design and Statistics for Biologists offers repeated opportunities for practice of B3. B1-3 are all rehearsed again in full via the Stage 2 residential field course and Methods in Biotechnology modules. The Stage 3 Biological Research Project requires students to design their own experiments (B1), analyse data yielded (B2), and appraise the quality of the data collected (B3). The Biological Literature Review and Biological Information Project focus more on B3. The skills that students gain through organisation, planning and execution of their Stage 3 project are further developed by the research project in Stage 4.

### **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. B1-3 are all assessed in Stage 4 through the Research Project.

### **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, and via the extended practicals in Stage 2 Methods in Biotechnology and the Biological Research Project at Stage 3 and practical modules in Stage 4. The analytical and statistical aspects of C1 are addressed via many laboratory and field classes in Stage 2, and the research project in Stage 3. These skills are further developed in Stage 4 via specific modules on quantitative methods and survey techniques and through the research project. Identification (C2) and field skills (C3) are developed particularly by field course modules at Stage 2 and Stage 4.

*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 via the Stage 2 residential field course, Stage 3 project and in Stage 4 through the 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 and the field course report. C1-3 can also be examined by means of the Stage 4 research project depending on topic of the research.

**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

In addition, students opting for Employability Skills for Biologists module or Ideas for Business Enterprise for Postgraduate have the opportunity to develop and demonstrate:

- D5. The ability to submit effective applications for employment (Employability Skills for Biologists only)
- D6. Self-appraisal skills with regard to the development of workplace skills
- D7. The ability to produce a Work Placement Plan to identify personal goals (Employability Skills for Biologists only)
- D8. The ability to demonstrate personal achievement by reflecting on the development of graduate skills.

For students on the Careers Placement Year programme:

- D9. Reflect on and manage own learning and development within the workplace
- D10. Use existing and new knowledge to enhance personal performance in a workplace environment
- D11. Use graduate skills in a professional manner in a workplace environment, evaluate the impact and communicate the personal development that has taken place.

For students on the International Study Year programme:

- D12. Adapt and operate in a different cultural environment

**Teaching and Learning Methods**

*Teaching strategy*

Management of workload in order to meet deadlines (D3) is promoted by means of a strict coursework timetable. All key skills (D1-4) are formally introduced in the Stage 1 study skills module. Team-working skills (D4) are developed through supervised group exercises in the laboratory and field in Stage 2, and via the Stage 2 Residential Field Course and Methods in Biotechnology. Key skills D1-4 are further developed at Stages 3 and 4 through the projects. For those students opting to take Employability Skills for Biologists, lectures and tutorials help to develop D5-D8, and D6-D8 are further developed in the workplace under guidance from the Placement Tutor and the workplace supervisors. In the optional modules Creativity and Market Research in Science and Engineering and Ideas for Business Enterprise for Postgraduates, D6 and D8 are developed through group meetings. For those students taking a Placement year, preparation for the placement helps to develop D5 and D6-D11 are developed in the workplace with guidance from the Careers Service and the workplace supervisors.

*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 the Stage 2 Experimental Design and Statistics for Biologists module and formative feedback is given (D1-D2). The application of all these skills (D1-D4) is practiced in the Stage 3 project modules. Talks are required in addition to the dissertation as outputs from the Biological Literature Review, and other media are routinely used to produce outputs for the Biological Information Project. In Stage 4, several of the modules require the presentation of information in either a group or individual presentation. The optional modules on employability skills, creativity and marketing and business enterprise help students to develop their understanding of business processes within a scientific framework.

#### **Assessment Strategy**

D1 and D2 are assessed repeatedly by means of coursework (including laboratory and field work reports) at all Stages. The ability to critically assess and review existing information is specifically tested in the Stage 1 study skills module and the project modules at Stages 3 and 4. Skills D5 to D11 are tested through work placement plans and reflective reports.

## **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 complementary 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 optional modules (totalling 20 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, and biochemical, 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.
- **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.
- **Stage 4** consists of a 60 credit research project and a choice of specialised masters level modules (60 credits selected from 120). The level of work at this stage is expected to reflect the higher level of qualification.

Students on the Careers Placement Year / International Study Year programmes will take their placements in the penultimate year of studies.

### **Key features of the programme**

This degree programme allows students to undertake an academically coherent study of biology that focuses on how biological species function, at scales ranging from the molecular to the whole organism, as well as how they interact, both physiologically and ecologically, with each other and their environment. The programme aims to give students a breadth of knowledge that will give them maximum flexibility in their future career paths. Along with a core of modules dealing with organisms as functioning units, students choose optional modules focused on different aspects of biology; these modules can deal with ecology and biodiversity or be more concerned with cell and molecular biology. Depending on the choice of modules, this will give students an understanding of how plants and animals cope with stress (at both physiological and molecular levels), responses to pollutants, and the key roles that microbes play in the environment, both beneficial and harmful. During the degree programme students develop skills in practical laboratory and field work, and the critical analysis and communication of scientific information. The fourth year provides the opportunity to undertake a substantial research project, working closely with a research group in the School.

**Programme regulations (link to on-line version)**

[C100-1842U](#)

**13 Support for Student Learning**

Generic information regarding University provision is available at the following link.

[Generic Information](#)

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

Generic information regarding University provision is available at the following link.

[Generic Information](#)

*Accreditation reports*

*Additional mechanisms*

**15 Regulation of assessment**

Generic information regarding University provision is available at the following link.

[Generic Information](#)

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

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

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

**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.



