# Programme Specification

This specification provides a summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided.

The content of our courses is reviewed annually to make sure it's up-to-date and relevant. Individual modules are occasionally updated or withdrawn. This is in response to discoveries through our world-leading research; funding changes; professional accreditation requirements; student or employer feedback; outcomes of reviews; and variations in staff or student numbers. In the event of any change we will inform students and take reasonable steps to minimise disruption.

**Programme Details**

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| **1. Programme title** | Biological Sciences | | |
| **2. Award type** | Bachelor of Science | | |
| **3. Programme details** | **FHEQ Level:**<br>6 | **Mode of Study:**<br>Full time<br>Full time | **Duration:**<br>3 years<br>4 years (Foundation) |
| **4. Faculty** | Faculty of Science | | |
| **5. School** | **Owning:** School of Biosciences | | |
| **6. Accrediting Professional or Statutory Body** | Royal Society of Biology (RSB) | | |
| **7. HECoS code**<br>*Select between one and three codes from the HECoS vocabulary.* | **Code:** 100346<br>**Percentage:** 50 | **Code:** 100345<br>**Percentage:** 50 | **Code:**<br>**Percentage:** |
| *Programme code (internal use)* | BISU16 (Full time)<br>BISU17 (Foundation) | | |

**9. Programme aims**

| The programme aims to: | |
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| **A1** | Provide stimulating and enjoyable teaching that is informed by the research and scholarship of its staff. |
| **A2** | Develop in students an independence of thought, intellectual curiosity and critical approach to evidence, theories and concepts. |
| **A3** | Develop in students a broad understanding of the biological sciences together with a more detailed and critical understanding of selected areas in biochemistry. |
| **A4** | Develop in students a range of programme-specific and transferable skills appropriate to employment both within and outside of biochemistry. |
| **A5** | Assess students over a range of skills, enabling them to maximise their academic potential in all aspects of their programme. |

**10. Programme learning outcomes**

| **Knowledge and understanding (K)**<br>On successful completion of the programme, students will be able to demonstrate knowledge and understanding of: | |
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| **K1** | A broad base of the core facts, concepts, and terminology across the biosciences together with a detailed and critical knowledge (including of the most recent advances) of selected areas relevant to biochemistry. |
| **K2** | The fundamental principles of biochemistry, including the structure, function, and regulation of key biomolecules—proteins, nucleic acids, lipids, and carbohydrates—and the chemical and physical properties that govern their behaviour in biological systems. |
| **K3** | How key biochemical processes such as metabolism, enzyme kinetics, and molecular signalling maintain cellular and organismal function. |
| **K4** | The diversity of life on earth, including the major phyla and their evolutionary relationships, and how evolutionary concepts can inform diverse applications ranging from the conservation of biodiversity to medical research and public health. |
| **K5** | The nature of scientific knowledge and its development in the light of new evidence and ongoing research. |
| **K6** | How to design and conduct research studies to investigate biological questions by formulating hypotheses, selecting appropriate methodologies, and planning statistical analysis, whilst considering any ethical implications. |
| **Skills and other attributes (S)**<br>*When considering the skills and attributes developed in this programme, please refer to the Sheffield Graduate attributes (SGAs). SGAs can be found here*<br>On successful completion of the programme, students will be able to: | |

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| **S1** | Collaborate effectively in teams to solve societal problems and address research questions, demonstrating leadership and the ability to work with colleagues from diverse scientific backgrounds. |
| **S2** | Demonstrate creative problem-solving by formulating novel scientific questions and designing experiments, including appropriate controls and drawing on an understanding of research ethics. |
| **S3** | Competently and safely use relevant laboratory, and computational techniques, demonstrating proficiency in observation, data collection, analysis, and interpretation, and keeping accurate experimental records. |
| **S4** | Synthesise biological information, evaluate scientific data and critically assess research findings to understand current debates and advancements in the field. |
| **S5** | Communicate biological concepts and research findings effectively to diverse audiences, utilising effective written, oral, and visual presentation skills to convey information clearly and persuasively. |
| **S6** | Plan and manage their own work, including managing their own time and using a range of resources (including lectures, textbooks, websites and the scientific literature) appropriately. |
| **S7** | Reflect on and articulate their own skills and interests and relate these to their career aspirations (including motivation for and interest in postgraduate study). |

**11. Learning and teaching methods** *(this should include a summary of methods used throughout the programme, including any unique features and should be written with a student focus as this information will display to current students and applicants i.e. prospectus)*

Biochemistry students must acquire and critically understand a substantial body of knowledge. In-person lectures are the principal teaching method used in subject-based modules, though these are rarely entirely didactic and will include varying amounts of student interaction. Some material may also be delivered in a 'flipped' format where students engage with the material in advance of an active learning session. Students at all levels are expected to supplement each lecture with directed independent study, and our provision of lecture recordings assists them with this. In the later years, more emphasis is placed on student-centred learning approaches, such as seminar discussions about research articles that supplement more content-based lectures.

Alongside lectures, students will develop their academic and transferable skills through engagement with tutorials, group work, workshops, field trips and laboratory classes. During the first year of study, students participate in laboratory sessions that provide training in core basic competencies. The laboratory sessions develop students' knowledge of equipment and methods, as well as their skills in laboratory work, data analysis, experimental design, and the preparation of reports. Laboratory work is typically carried out in pairs or small groups. In addition, they receive online training in statistics and data skills. Where relevant to a student's modules, field courses are included, which place a strong emphasis on self-directed, autonomous use of acquired skills and the need to work efficiently in groups.

The level 3 capstone project, designed to meet RSB accreditation requirements, allows students to direct their learning under academic supervision. A wide range of projects is offered, reflecting diverse career options, including laboratory work supervised by an academic staff member within the School; analysis of complex data sets gathered from large-scale research projects; clinical diagnostics; development and delivery of science lessons in a local school; or creation and evaluation of a portfolio on a biological topic of ethical and political significance. All projects are centred around the scientific method and build on the literature-searching and writing skills introduced in the earlier years.

**12. Assessment and feedback methods** *(this should include the range of types of methods used and should be written with a student focus as this information will display to current students and applicants i.e. prospectus)*

A programme-level approach is taken to design the assessment methods used such that students are assessed via a diverse set of methods across their three- or four-year programme. Assessment methods are also deliberately scaffolded such that students can reflect on their performance and build their competence from one year to the next.

In level 1 lecture modules, where there is an emphasis on building a core knowledge base, MCQ examinations make up a significant part of the assessment. These exams are designed to assess understanding rather than simply testing recall, and are supplemented with a written exam component where students can further display their ability to interpret data, synthesise information, and explain concepts. Examination papers at Levels 2 and 3 test students' critical understanding by challenging them to evaluate their knowledge and synthesise answers that reflect the specific ways in which questions have been framed.

In addition to formal examinations, students are assessed via continuous assessment approaches suitable for the skills being assessed. For example, written laboratory reports assess students' ability to write scientifically, design experiments, and analyse, present, and interpret data. During lab classes, students are observed to ensure that they are technically proficient in a set of core competencies, and they are supported in developing these skills until proficiency is achieved. Additional tasks within the skills modules assess students' creativity, communication skills, and ability to work with others.

A comprehensive programme-level feedback strategy is embedded to ensure students receive regular, actionable feedback throughout their academic journey. Structured feedback mechanisms are integrated at key points in the programme, enabling students to apply insights from previous assessments to improve their performance in future tasks. This includes formative feedback opportunities within subject modules, such as self-assessment activities that encourage students to reflect critically on their work. In laboratory-based modules, immediate feedback is provided during practical sessions, offering students timely guidance to refine their techniques and skills.

Students undertaking group projects receive group and individual feedback, ensuring a balanced understanding of their performance. Capstone projects, which mark the programme's culmination, are accompanied by supervisor feedback at key project stages, such as the proposal, data collection, and analysis, allowing students to refine their approach as the project progresses.

These feedback strategies, combined with the scaffolded assessment design, support students in reflecting on their learning, developing their skills incrementally, and achieving success in both knowledge acquisition and practical application.

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| **Version Number:** | **Purpose / Change:** | **Cohort affected: (academic year and level)** | **Date change approved:** |
|---|---|---|---|
| 1 | Major Amendment | | October 2024 |
| 2 | Programme Simplification | 25/26 - Foundation<br>26/27 - Year 1 & 2 | June 2025 |

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