



The  
University  
Of  
Sheffield.

## Programme Specification

A statement of the knowledge, understanding and skills that underpin a taught programme of study leading to an award from The University of Sheffield

### Programme Details

1. Programme title	Zoology
2. Programme code	APSU06 / BISU01 (BSc); APSU17 / BISU02 (MBiolSci)
3. QAA FHEQ level	Honours
4. Faculty	Science
5. Department	School of Biosciences
6. Other departments providing credit bearing modules for the programme	Not applicable
7. Accrediting Professional or Statutory Body	None
8. Date of production/revision	March 2022, September 2023

Awards	Type of award	Duration
9. Final award	BSc, MBiolSci	3 years, 4 years
10. Intermediate awards	BSc from MBiolSci	

### Programme Codes

11. JACS code(s) <i>Select between one and three codes from the <a href="#">HESA website</a>.</i>	C300	C309	
12. HECoS code(s) <i>Select between one and three codes from the <a href="#">HECoS vocabulary</a>.</i>	100356		

## Programme Delivery

13. Mode of study	Full-time
14. Mode of delivery	Face to Face

## 15. Background to the programme and subject area

Zoology, the study of animal life, seeks to understand how the constituent parts of animals are coordinated to form a functional whole and how whole animals interact with other living organisms and the physical environment. Animals form a majority of the living species on our planet and so any attempt to understand our natural environment should involve zoology. Zoology also contributes to our understanding of humans. Three main themes covered by the Zoology programme at Sheffield are: the interactions of animals with each other and with their environment (i.e. *animal behaviour* and *animal ecology*); the adaptation of animals to their environment (i.e. *evolutionary biology*); the functional integration of animals (i.e. *comparative physiology*). The behaviour of animals is concerned with finding food and mates and avoiding becoming food themselves, whereas ecology is concerned with the interactions between animals and their environment that determine their abundance, distribution and activities. Natural environments are rarely stable over long periods of time, and so for life to have persisted on earth there must be mechanisms that have resulted in animals adapting to new environments. Modern evolutionary biology seeks to understand these mechanisms and the resultant biodiversity of animal life. Physiology can involve studies at the cellular, organ or whole organism level, but the objective is always to understand the internal functioning of the animal body and how animals maintain and reproduce themselves in the wide variety of habitats on earth.

Zoology is becoming increasingly relevant to modern society as it seeks to address the important issues of the 21<sup>st</sup> century, including loss of biodiversity, wildlife conservation, genetically modified organisms, cloning and disease outbreaks. Zoology is an area of science that has an immediate impact on our daily lives.

Zoology is a large subject that accommodates a wide variety of fields. Along with core modules in Animal Physiology, Reproduction and Development, Evolution, and Animal Behaviour, students can take modules in Microbiology, Pathobiology, Human Physiology and Pharmacology, Human Development and Neuroscience as well as in the Molecular Biosciences. The programme at Sheffield is designed to provide a broad-based and flexible approach to the study of animals. Students can organise their programme to maintain a broad overview, or they can focus on areas of specialisation towards the end of their degree.

Members of the School of Biosciences teach this programme. We are one of the largest in the UK devoted to the study of biology, and have been graded excellent in both teaching and research.

Sheffield graduates in Zoology are qualified for a wide variety of careers since they will have developed a wide-range of subject-specific and generic skills that can be transferred to both zoological and non-zoological employment. The Zoology degree is taught by members of the Department of Animal and Plant Sciences. This department is one of the largest in the UK devoted to the study of whole organism biology.

## 16. Programme aims

The BSc and MBiolSci Biology Programmes aim to:

<b>A1</b>	Provide teaching that is informed and invigorated by the research and scholarship of its staff, is stimulating to and enjoyed by students.
<b>A2</b>	Develop in students an independence of thought, intellectual curiosity and critical approach to evidence, theories and concepts.

<b>A3</b>	Enable students to maximise their academic potential in all aspects of their programme.
<b>A4</b>	Assess students over a range of skills and identify, support and encourage academic excellence.
<b>A5</b>	Impart to students an awareness of the importance of commitment to and skills relevant for life-long learning.
<b>A6</b>	Provide a supportive environment for students with effective mechanisms for referral to specialist services when required.
<b>A7</b>	Develop a broad understanding of zoology together with a more detailed and critical understanding of selected areas in zoology.
<b>A8</b>	Develop in students a range of subject-specific and generic skills appropriate to employment both within and outside of biology.
<b>A9</b>	Prepare students for postgraduate work and a professional career in zoology.
In addition the MBiolSci programme aims to:	
<b>A10</b>	Develop in students an ability to carry out independent research, to critically review biological manuscripts and to write grant proposals.

## 17. Programme learning outcomes

<b>Knowledge and understanding</b>		
On successful completion of the programme, students will be able to demonstrate knowledge and understanding of:		
		<b>Links to Aim(s)</b>
<b>K1</b>	A broad range of biological subjects of their choosing (including molecular and cell biology, molecular and cell biology biochemistry, genetics, evolution, microbiology, plant sciences, zoology, ecology and conservation, physiology and pharmacology, pathobiology, development and neuroscience).	A1-A9
<b>K2</b>	A number of specific subject areas in depth (from a choice of <i>inter alia</i> : biodiversity, animal behaviour, population and community ecology, organismal interactions, evolutionary genetics, climate science, pathobiology, environmental microbiology, regenerative medicine).	A1-A9
<b>K3</b>	The social, economic and global impact and utility of biological understanding in a choice of areas of interest (including <i>inter alia</i> biotechnology, biodiversity, climate change, sustainability, conservation and management, disease control, medical advances).	A1-A9
<b>K4</b>	Essential zoological concepts and facts across a range of biological levels from sub-organismal organisation, through form and function, to interactions between individuals and within and between communities and ecosystems.	A1-A9
<b>K5</b>	The relationship between the information base in a subject area, the theory that arises from it and the genesis of empirical tests of the defining theory.	A1-A9
<b>K6</b>	Biostatistical techniques and their application.	A1-A9
<b>K7</b>	Biological terminology, nomenclature and classification.	A1-A9

<b>K8</b>	The ethical and philosophical issues related to biology and science.	A1-A9
<b>K9</b>	The applicability of biological skills and knowledge to careers.	A1-A9
In addition MBiolSci Students will be able to demonstrate knowledge and understanding of:		
<b>K10</b>	Specialist research-led areas of either evolution and behaviour, environment and biodiversity or molecular and ecological physiology.	A1-A9
<b>K11</b>	Advanced biostatistics.	A1-A9
<b>K12</b>	The processes underpinning the securing of funding and the publishing of biological research.	A1-A9
<b>K13</b>	The role of leadership in research.	A1-A9
<b>Skills and other attributes</b>		
On successful completion of the programme, students will be able to:		
<b>S1</b>	Recognise and apply biological theories, concepts, principles and/or paradigms to their work.	A1-A9
<b>S2</b>	Execute basic lab and field techniques in a safe, effective and precise manner.	A1-A9
<b>S3</b>	Carry out health and safety risk assessments and devise safe systems of working.	A1-A9
<b>S4</b>	Use first principles in biology and factual knowledge of systems to identify novel problems in zoology.	A1-A9
<b>S5</b>	Use the scientific method to formulate hypotheses and testable predictions.	A1-A9
<b>S6</b>	Design observational and experimental studies that allow the testing of predictions.	A1-A9
<b>S7</b>	Collect, organise, analyse and interpret qualitative and quantitative empirical field and laboratory data to address zoological questions.	A1-A9
<b>S8</b>	Use commercial software and programming systems for the management, analysis and presentation of data.	A1-A9
<b>S9</b>	Assess theories, concepts and empirical evidence from the zoological literature and from observational and experimental studies in an objective and critical manner.	A1-A9
<b>S10</b>	Locate, critically evaluate, synthesise, summarise and cite printed and electronic information, including from the primary literature.	A1-A9
<b>S11</b>	Communicate effectively in writing and orally, identifying an appropriate method of communication depending on the material to be delivered and the audience.	A1-A9
<b>S12</b>	Produce a range of written materials (including <i>inter alia</i> scientific papers, literature reviews, essays, abstracts).	A1-A9
<b>S13</b>	Recognise the moral and ethical issues of a particular approach and appreciate the need for ethical standards and appropriate codes of conduct.	A1-A9

<b>S14</b>	Work effectively as part of a team, recognising and respecting the views and opinions of other team members, identifying collective goals and adjusting and applying appropriate approaches.	A1-A9
<b>S15</b>	Make informed / justifiable evidence-based decisions.	A1-A9
<b>S16</b>	Identify individual goals and responsibilities, exercise independent thought and judgement, act effectively, and reflect on ongoing individual performance.	A1-A9
<b>S17</b>	Implement the skills underpinning life-long learning and employment (time-management, independent learning, organisational skills).	A1-A9
<b>S18</b>	Identify and work towards targets for personal, academic and career development using an adaptable, effective and resilient approach to study and work.	A1-A9
In addition MBIoSci Students will be able to:		
<b>S19</b>	Organise and manage practical and literary research projects to a high standard.	A1-A9
<b>S20</b>	Write grant proposals for scientific research projects.	A1-A9
<b>S21</b>	Apply advanced, practical and statistical techniques to research.	A1-A9
<b>S22</b>	Communicate their science to a public audience via written and oral media.	A1-A9

## 18. Learning and teaching methods

Students learn in a research-embedded framework, in which they use the scientific method to explore biological questions in a constructively critical manner. In the early years, lectures are the principal means of imparting knowledge and demonstrating critical analytical skills, while understanding is gained through a combination of tutorials, example classes, laboratory classes and formatively assessed assignments. Skills are acquired mainly through self-directed, assessed work conducted during tutorials, laboratory classes, online data sessions, and group projects. Field courses, with a strong emphasis on self-directed, autonomous use of acquired skills and the need to work efficiently in groups, develop field and transferable skills. In the later years, more emphasis is placed on student centred learning exercises, workshops, seminars and project work (small group and individual) as methods by which knowledge and understanding are gained, skills are acquired and improved, and biological questions are rigorously explored.

## 19. Assessment and feedback methods

Students' knowledge, understanding and skills are assessed by end-of-semester examinations, coursework and continuous assessment throughout the module. Types of assessments are matched to the subject.

### Lecture Modules

Most lecture modules at levels 1 and 2 are assessed by formal examinations, which provide effective tests of knowledge, problem solving skills and conceptual and synthetic thinking. At Level 1, lecture modules are examined by multiple-choice papers. Level 2 lecture modules are primarily assessed using a combination of essay or short answer questions, or a combination of these and multiple-choice questions; some L2 modules involve coursework assessments. At level 3 lecture modules are assessed either by formal examination and/or coursework. Coursework may take the form of essays, problem-based questions or POST notes. Subjected to deadlines, these forms of assessment encourage students to manage their workloads, learning schedules and time productively. Most Level

2 and Level 3 examination papers offer a choice of questions and are designed to enable students to demonstrate their knowledge of the subject matter and concepts as well as to integrate specific aspects of their knowledge and skills base. There are no formal written examinations at Level 4 but there are formal data handling examinations, oral presentations and coursework.

### **Skills Modules**

The skills module at L1 is examined by continuous assessment throughout the year. Such assessment develops skills of self-motivation, organisation and self-discipline whilst indirectly stimulating the student's ability to harvest and collate information from the literature, whilst working to a deadline. Because a number of self-developed skills contribute to the standard of the assessed work, the assessment inevitably encapsulates these, as well as knowledge, logical and structured thinking and argument development. These assessments typically occur throughout the module and involve feedback. Formats include written work, oral and poster presentations, laboratory notebook assessment and data handling and analysis exercises. Most data collection and processing skills are assessed via this form of assessment.

Assessments, both formative and summative consider scientific content, logical structure, synthesis, level of critical evaluation, inclusion of literature, clarity of exposition, language and style. Selected modules at all levels have an element of formative assessment.

### **Field Courses, Projects, and Dissertations**

Level 2 and Level 3 field courses are assessed by talks and written reports. Detailed formal feedback is given on field course assessments to prepare students for L3 and L4 projects. Level 1 practical projects and Level 3 and Level 4 research projects and dissertations are assessed on the basis of written reports in the style of formal scientific papers or reviews.

### **Feedback**

Formative individual written and oral feedback will be provided in L1 and L2 tutorial exercises, and in L3 and L4 field course reports, dissertations and projects. Oral individual and group feedback will be provided in practicals and staff will be available in lecture modules for students to ask questions and receive feedback.

## **20. Programme structure and student development**

The programme is modular and offered as full-time study only. Students gain subject knowledge and practical, communication and data skills. These are applied in later years in capstone research projects and literature reviews.

In Level 1 students are introduced to a broad range of zoological theory, phenomenology, foundation practical skills and data collection methods that build on and consolidate skills and knowledge previously acquired. Tutorial work develops information processing and data interpretation skills and builds a solid base for conceptual thinking, logical argument, professional judgement, the development of communication skills, teamwork and skills for life-long learning. By the end of level 1 students will have an appreciation of the complexity and diversity of biological processes.

In Level 2 students develop a wider knowledge and deeper understanding of generic areas of zoology as well as subject areas that build on Level 1 experience. Core work includes practical skills that emphasise objective design and execution of empirical zoological practical investigation. This is integrated with the development of a core statistical skill-base that informs design and enables analysis. The development of teamwork and interpersonal skills, time-management, conceptual thinking, logical argument and communication is developed in tutorials. Optional modules available at this level permit students to broaden and deepen their interests in more specialised areas of zoology. Modules at this level employ a range of teaching and assessment techniques that are designed to foster and test the analytical and critical faculties of students and encourage autonomy in learning.

In Level 3 teaching and learning exploits the increasing sophistication our students are developing in their knowledge base and critical/analytical skills. The core modules are a research project and a literature review, both of which rely on, and further develop good transferable skills and a solid understanding of empirical zoology, information gathering, synthesis and critical evaluation. Students

also choose from a wide range of optional modules in selected, research-led areas of zoology and field courses. These modules develop knowledge, understanding and a critical approach to evidence, theories and concepts and utilise a range of teaching and assessment methods appropriate to their learning aims.

Level 4 exploits and develops the self-confidence, knowledge base and capacity for autonomous study students have acquired during the preceding 3 years. During this year they acquire advanced subject-specific and generic transferable skills appropriate to employment within and outside of zoology. The core modules in year four teach communicating science to the public, advanced biostatistics, and the processes underpinning successful fund-raising and publishing in biology. Students also conduct laboratory and library research that requires the application of technical and conceptual knowledge and understanding gained in the earlier years. Students work in active research groups and are expected to learn from, and contribute to, those groups, displaying appropriate levels of creativity, originality and judgement.

Detailed information about the structure of programmes, regulations concerning assessment and progression and descriptions of individual modules are published in the University Calendar available online at <http://www.sheffield.ac.uk/calendar/>.

## 21. Criteria for admission to the programme

BSc - AAB including Biology and a second science.

MBiolSci - AAA including Biology and a second science.

Information obtained from <http://www.shef.ac.uk/courses/>.

## 22. Reference points

**The learning outcomes have been developed to reflect the following points of reference:**

Subject Benchmark Statements

<https://www.qaa.ac.uk/quality-code/subject-benchmark-statements>

Framework for Higher Education Qualifications (2014)

<https://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf>

University Vision and Strategic Plan

<https://www.sheffield.ac.uk/vision>

## 23. Additional information

Teaching facilities include modern teaching laboratories, lecture theatres and excellent IT systems. The departments are within walking distance of a vibrant 24-hour city centre and also within easy reach of the Peak District National Park, an area of outstanding natural beauty.

This specification represents a concise statement about the main features of the programme and should be considered alongside other sources of information provided by the teaching department(s) and the University. In addition to programme specific information, further information about studying at The University of Sheffield can be accessed via our Student Services web site at <http://www.shef.ac.uk/ssid>.