



**Bournemouth  
University**

# Biological Sciences BSc (Hons)

## School of Applied Sciences

The course explores the interaction of biological systems and focuses on the development of the skills necessary to apply biological concepts to the solution of practical problems.

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**Start Date:**

September

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**Duration:**

3 years full-time with an optional short placement (or 4 years with a 40 week placement); 6 years part-time

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**UCAS:**

C100

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**Entry Requirements:**

**For 2012 entry:** 300 tariff points, typically from 3 A-levels or equivalent

**For 2013 entry:** 300 tariff points, including 100 from one required subject (e.g. B at A-level). BTEC Extended Diploma: DDM

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**Required subjects:**

At least one of the following subjects: Biology, Chemistry, Maths, Physics, Human Biology

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**Recommended GCSEs:**

A minimum of 5 GCSEs grades A\* - C including a Science, Maths and English or equivalent qualifications.

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**If English is not your first language:**

IELTS (Academic) 6.5 with minimum 5.5 in each component or equivalent

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**Contact askBU enquiries service:**

**Tel:** 08456 501501 (UK callers only)

+44 (0)1202 961916

Email: [askbuenquiries@bournemouth.ac.uk](mailto:askbuenquiries@bournemouth.ac.uk)

Web: [www.bournemouth.ac.uk/askbu](http://www.bournemouth.ac.uk/askbu)

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**Open Days:**

To register for an open day log on to:  
[www.bournemouth.ac.uk/opendays](http://www.bournemouth.ac.uk/opendays)

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**For more course information:**

[www.bournemouth.ac.uk/courses/bsbs](http://www.bournemouth.ac.uk/courses/bsbs)

**Why choose this course?**

- Covers a wide range of topics from biochemistry and pharmacology, to marine conservation and applied anthropology
- Enhances your learning experience by working with academics renowned for their research, education, and professional practice
- Provides the ideal foundation for a future career in the field and in research.

**Course Overview**

The first two years of this course allows you to develop core knowledge and understanding in the areas of human biology, biochemistry, laboratory and investigative techniques, ecology and human evolution along with the opportunity to further develop your interests in osteology or evolution in a wildlife conservation context.

The final year allows you to choose taught units from the thematic areas developed in the first and second year and undertake a research project that offers you the chance to understand a topic in greater depth than is possible with the taught units. This course involves strong components of laboratory work instilling practice to the theory learned.

The course covers a wide range of topics, allowing you more choice for employment options. You will be well-equipped to pursue careers in areas such as biotechnology, occupational health, environmental science, forensic and biomedical research and education. Alternatively, you may progress to a Masters course, PhD and further research.

## **Course Content & Unit Overviews**

### **Year 1**

#### **Investigative & Reporting Skills**

Providing you with the core skill set necessary for undergraduate study in a science subject, this unit will particularly develop independent learning. By the end of the unit you will have completed a simulated science-based investigation exercise, demonstrating the application of a range of core skills as an investigative scientist.

#### **Topics in Contemporary Science**

You will be exposed to a range of contemporary themes in science, either driven by research taking place within the School or by topical science agenda. The unit is delivered by a seminar series covering all aspects of the science relevant to the School of Applied Sciences. Topical or popular issues are examined and the science that underlies them explored.

#### **Practical Skills**

The practical and field skills necessary for undergraduate study in a science subject specifically within the fields of archaeology, environment & biological-forensic science will be covered. You will be taught through a series of short courses and self directed learning exercises designed to develop your independent learning skills.

#### **Biology**

The fundamental concepts of biology, including cell biology, molecular biology, anatomy and physiology will be studied in this unit. It will explore the molecular basis of life, physiological processes and the function, structure and regulation of the most important organ systems in animals. You will also develop core bioscience skills, such as practical ability, data handling, time management and team work through laboratory classes.

#### **Chemistry**

You will be provided with an understanding of some aspects and processes within fundamental chemistry and analytical chemistry and develop your laboratory skills. The unit will predominately be delivered through lectures and practical laboratory sessions. The laboratory sessions will enable reinforcement of the theoretical concepts by dealing with experimentally generated data and will allow for one-to-one and small group discussions.

#### **Ecological Conservation**

The ecological, human societal and ethical issues which

underpin conservation ecology be considered in this unit. You will be introduced to key issues in lectures, and asked to explore them through seminar discussions and fieldwork. You will be asked to consider how these key issues integrate to affect the ecological conservation of a range of case studies.

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### **Year 2**

#### **Biochemistry**

This science-based unit is designed to enable you to be conversant with biochemical aspects of modern biological sciences whilst serving to provide a foundation for final level study such as Biomolecules and Toxicology in the third year. Supported by some of the laboratory practical sessions, the unit will deliver the contents of four core parts of modern biochemistry, namely structure of macromolecules, transmission of genetic information, function of proteins, and metabolic pathways.

#### **Ecology & Ecosystems Management**

The theoretical principles in ecology and their application to ecosystem management and protection will be explored in this unit. The importance of human prehistoric, historic and current influences on ecosystems will be explored, thus linking natural and cultural heritage.

#### **Field Research: Environment**

By the end of this unit you will have developed your ability to carry out field based research, appropriate to this course. You will develop an understanding and ability to formulate field research problems, design appropriate research strategies, gather and analyse data methodically and appropriately, report the results and manage the process effectively.

#### **Introduction to Toxicology**

The basic principals of toxicology will be explored in this unit, designed to offer foundation knowledge for those intending to study toxicology at higher levels or for those intending to study subjects peripheral to toxicology or where a basic understanding of toxicology will be relevant.

#### **Human Origins & Evolution**

Past and current theories surrounding human origins and evolution will be explored. This unit will consider various lines of evidence including modern human biology, fossil anatomy, genetic studies, primatological evidence and archaeological material. You will be introduced to concepts of evolutionary theory, approaches to understanding specific adaptations and to differing

hypotheses regarding human ancestry and how these may be approached critically.

*Option units: choose two of the following:*

### **Evolution & Wildlife Conservation**

Providing you with an understanding of the factors involved in the evolution and long term conservation of species, this unit considers how natural processes and humans have interacted to determine large-scale patterns of biodiversity and evolutionary change.

### **Human Osteology**

This unit provides an introduction to the basic principles of analysis and interpretation involved in the study of skeletal remains of modern humans. It introduces the concepts and uses of biological data in examination and analysis of human skeletal remains from archaeological and forensic contexts and involves the determination of basic bioprofiling characteristics including sex, age at death, ancestry and stature. Attention is also given to considering skeletal data at the level of populations as opposed to that of individuals.

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## **Year 3**

### **Independent Research Project**

The Independent Research Project provides you with an opportunity to gain experience of research in a topic of your choice relevant to your degree and to demonstrate your ability to report that research. Such experience is considered essential for those students interested in pursuing academic and/or professional research at a higher level of responsibility and achievement.

*Option units: choose four of the following:*

### **Applied Anthropology** (only in combination with Human Osteology)

Introducing you to the wider applications and potential of research in Biological Anthropology, you will explore the analysis and interpretation of skeletal pathology and trauma and examine ways in which the study of disease can inform about health status in past societies. Attention is also given to considering how such pathology can provide important information that may lead to the identification of deceased individuals recovered from forensic contexts. Consideration is also given to the ways data is captured and analysed at the level of populations and of both the problems and prospects such analysis carry.

### **Biomolecules**

By the end of this unit you will be conversant with the concepts and approaches of holism compared with reductionism in modern biological sciences. It will review the principles of biology and modern biotechnologies from molecular levels to systems biology, such as DNA analysis, DNA profiling, functional genomics, gene expression and cDNA microarray, proteomics and protein interactions, epigenetics, bioinformatics, recombinant DNA, and biotechnology.

### **Freshwater Resource Management**

The theory and practice for issues relating to the conservation and management of freshwater resources will be covered in this unit. It covers a range of aspects of freshwater resource management including sustainable development, conservation and key issues from a planning policy and decision making perspective. By providing a framework for you to actively make managerial decisions, the unit enables problems to be identified, analysed and solutions to be proposed including the promotion of sustainable communities and public participation in the planning process and environmental assessment.

### **Marine Conservation**

This unit will develop your practical knowledge and understanding of the conservation and management of marine biodiversity, fisheries and underwater heritage resources. You will also examine the formulation of policy and the legal processes and mechanisms that are applied to the conservation of marine and coastal environments.

### **Pharmacology & Therapeutics**

The pharmacological principles, which underlie the therapeutic actions and adverse effects of drugs will be explored by this unit. You will also develop an understanding of established procedures and recent or possible future developments in the drug treatment of specific clinical conditions and the ability to critically evaluate the benefits and drawbacks of drug therapy.

### **Primate Behavioural Ecology**

The way in which primate behaviour can be interpreted will be explored from an evolutionary viewpoint, and how human and non-human primates' behavioural strategies are adapted to the environment (social and ecological) in which they live. The unit is aimed at stimulating discussion and the critical analysis of theories.

### **Wildlife Behavioural & Habitat Conservation**

The aim of this unit is to enable you to appreciate how wildlife behaviour affects the success of habitat management for conservation and to develop the skills required to evaluate ecological data in the context of conservation ecology.

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### **Placement**

The placement provides you with the experience of how an organisation operates, as well as an opportunity to enhance your personal development and future employability. The placement will allow you to begin to put theory and competencies into practice as well as develop new skills.

### **Resources and Facilities**

We have dedicated laboratories that have a comprehensive range of analytical, technical and experimental facilities, including state of the art field equipment, extensive reference collections of materials, artefacts and both human and animal skeletons to give you vital hands-on experience.

### **The Forensic & Biological Sciences Group**

This course builds on the considerable research expertise from staff attached to the School's Forensic and Biological Sciences Group. Specialist interests include anthropology, biomolecules, chemistry, environmental law, medical genetics, pharmacology, primatology, public health, toxicology and crime scene investigation.

### **Career Opportunities**

You might decide to progress to Masters-level courses, where you will undertake further dedicated research to broaden your interest in a particular area. If you choose to enter employment, an impressive range of opportunities will be available to you.

Your career, of course, will be dependent on the specialist areas that you tailored your course towards. However, you could work in fields as diverse as biotechnology, biomedical research, forensics, occupational health, environmental research and education.

*The University reserves the right to introduce changes to the information given, including the addition, withdrawal, relocation or restructuring of courses.*