

**City College Norwich
Higher Education: Programme Summary Specification**

This Summary Programme Specification sets out the essential features and characteristics of the BSc (Hons) Animal Science course.

Course Title	BSc (Hons) Animal Science
Awarding Body	University of East Anglia
Level of Award	Level 6
Professional, Statutory and Regulatory Bodies Recognition	None
Credit Structure	120 credits at Level 4, Level 5 and Level 6: 360 credits in total
Mode of Attendance	Full-Time
Standard Length of Course	3 Years
Intended Award	BSc (Hons): Bachelor of Science
Fall-back Awards	Certificate of Higher Education: 120 Credits Diploma of Higher Education: 240 Credits
Entry Requirements	64 UCAS Points English, Maths and Science GCSE at 4 (C) Mature students (21 years and over) may be considered on prior learning and experience AP(C/E)L & RPEL may be considered for non-standard entry. For international applications IELTS at level 6 (minimum 5.5 in all components) is required.
Delivering Institution(s)	Easton College
UCAS Code	D380

Course Summary

This BSc (Hons) Animal Science is designed to meet the needs of students who wish to gain knowledge and understanding of the breadth of animal science within an academically challenging yet supportive environment.

Our aim is to produce confident, knowledgeable, and questioning graduates with the skills and experience needed for a wide range of careers or further study.

Students will be taught a wide range of concepts to cover the broad disciplines of animal science, this will include the opportunity to work with a range of different species such as domestic, exotic, aquatic and farm animals. Students studying animal science will also be given opportunities to develop specific/more focussed areas of study in their second and final year, as this will enhance their employability in areas of interest to them. Teaching and learning methods will include a mix of conventional lectures and practical classes, which cover the core subject matter and technical skills, supported by tutorials and seminars which allow students to develop, analyse and present their own findings. Practical classes in the laboratory and/or field allow students to practice project management and data gathering, handling and interpretation skills. All students will have the opportunity to conduct independent research in their final year research project and will have opportunities to direct their curriculum at other points in the syllabus. A varied assessment diet has been designed to encourage and test the development of the skills and knowledge needed in their future careers. Students will be supported throughout their degree by a strong personal tutoring system.

Course Aims

This programme aims to equip students with skills, knowledge, and confidence necessary to pursue graduate careers in the animal sciences or other areas requiring graduates with strong analytical, communication and enquiry skills. This course also aims to provide a good overall knowledge of the disciplines of animal science, so students can specialise further at master's level study. This will be achieved by providing students with an educational framework in which they can develop their knowledge and understanding of the fundamental principles of animal science in a context where skills development is encouraged and supported as an integral part of the academic experience. Students will be encouraged to learn independently and to pursue areas they find particularly interesting in an enquiry-based approach.

Course Learning Outcomes

Learning outcomes will be communicated to students and external examiners through the course handbook, the module specifications and assignment briefs.

A selection of learning outcomes associated with this degree programme:

- Explain the structure and function of animal organs and organ systems
- Describe the divisions and components of the immune system, explain their functions and describe immune response to pathogens
- Undertake correct husbandry procedures for captive and domestic animals
- Analyse the function and structure of cells including the metabolic reactions that occur in cells

- Investigate the legal protection and management of UK wildlife in situ, in both protected and unprotected areas.
- Analyse the relationships between animal behaviour and the environment
- Analyse the factors affecting the nutritional requirements of animals and prepare a range of suitable feeding regimes to meet their needs.
- Evaluate the ethical issues arising from the use of animals in human society.
- Critically analyse the effects of current advances in animal reproductive technology used in industry settings
- Analyse the evolution and changing focus of the contemporary zoological collection and the value of zoos as a community
- Investigate natural animal behavioural patterns and how they are of key relevance when determining an animal's captive requirements
- Critically evaluate the adaptation and evolution of the digestive anatomy and physiology of specified animal species
- Argue ethical dilemmas and legal limitations involved in saving species from extinction
- Critically evaluate the way science is presented in the media

Course Design

The design of this course has been guided by the following QAA (Quality Assurance Agency) Benchmark and Professional Standards:

QAA Framework for HE Qualifications of UK Degree-Awarding Bodies (publication date 3 November 2014).

UK Quality Code for Higher Education:

Earth Sciences, Environmental Sciences and Environmental Studies

https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-earth-sciences-environmental-sciences-and-environmental-studies.pdf?sfvrsn=ff2c881_6

Veterinary Nursing

https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-veterinary-nursing.pdf?sfvrsn=def3c881_6

Course Structure

This course comprises modules at levels 4, 5 and 6.

Students on the programme are required to be self-reflective and as such modules Level 4, 5 and 6 promote reflective practice, analysis of self and others performance and planning of self-development. By Level 6 students are expected to have reached a high level of autonomy regarding their studies, the dissertation in particular challenges them academically but also requires thorough research, planning and sustained enquiry.

Module Specifications for each of these modules will be made available to students on-line at the beginning of each academic year.

Modules

Year 1 – Level 4 Modules		
Module Title	Credit Value	Module Summary (including associated assessments)
Professional and Academic Skills	20	<p>Professional and Academic Skills is a core module and designed to aid your success in your programme of study.</p> <p>This module aims to:</p> <ul style="list-style-type: none"> • to provide a framework of professional and academic skills at undergraduate level • to promote your recognition of the value of research, critical analysis and reporting in the context of your programme specialism • to aid in the identification and development of a developmental approach to learning and to the professional skills required for employment <p>Assessment:</p> <ul style="list-style-type: none"> • Group Presentation • Reflective Journal
Principles of Biology	20	<p>This module provides you with the essential background knowledge in cellular and molecular biology with an emphasis on genetics and evolution. You will become familiar with cellular structures and functions and the classification of living organisms.</p> <p>The module aims to develop your knowledge and understanding of plant and animal physiology alongside with the homeostatic processes that are essential in ensuring the survival of the organism in constantly changing environments.</p> <p>The module introduces you to the mechanisms of heredity including cell division, sex determination and the laws of inheritance.</p> <p>You will also examine the processes which drive evolution, the concepts of natural selection and events which upset the population genetics including genetic drifts and founder effect.</p> <p>This module aims to introduce you to, and develop, your observational and practical skills using light microscopy, breeding <i>Drosophila melanogaster</i> and using molecular techniques such as electrophoresis. These practical activities will improve your understanding and practical skills in biological science, the fundamental processes in living organisms and of contemporary scientific technologies.</p>

		<p>Assessment:</p> <ul style="list-style-type: none"> • Exam • Academic Poster – examining the genetics and evolution of a chosen species
Animal Anatomy and Physiology	20	<p>The animal body is remarkably well designed. Different parts of the body must work together in perfect harmony to maintain life. Health may seem to be the normal situation, but for the body to maintain life, incredibly complicated processes must occur. The relationship between disease and anatomy is strong. Disease affects anatomy and abnormal anatomy causes disease. Normal anatomy and physiology are essential for the animal's health, welfare and survival. The study of anatomy and physiology gives insight into each animal species and gives us the ability to influence an animal's survival, when there is dysfunction of the normal anatomy and physiology.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Examination • Scientific Report
Applied Animal Husbandry	20	<p>Employees in the Animal Care sector will typically be involved in the care, handling and husbandry of a variety of different species, in a potentially wide range of different situations e.g. zoos, aquaria, rehabilitation, rescue, pet shops, breeders, livestock etc. This module aims to develop key skills required in this field, enhancing the employability of graduates.</p> <p>Animal care, handling and husbandry is governed by legislation and guidelines in the United Kingdom which aims to promote the welfare of vertebrate / cephalopod species. Students will investigate these and review their impact on common husbandry procedures.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Observation Assessment • Welfare Site Report • Essay
Animal Health and Disease	20	<p>This module is designed to develop the student's understanding of the immune system in a variety of species and how it mediates a response to destroy pathogens. They will examine the organs and cells involved in the defense of the body and explore immunodeficiencies and immunosuppression. Students will explore the range of common pathogens that effect species such as farm animals, companion animals, small animals, equines and exotic species. They will identify and appraise environmental factors affecting health and the immune response and explore how risks to animal health may be controlled in a real-life establishment.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Case study • Site Inspection Report

Wildlife Management	20	<p>The number of species moving towards extinction is increasing due to many factors eg climate change, loss of habitat due to human population growth and resource removal. Habitat is lost due to urbanisation, agriculture and pollution, while individual species are treated as resources and exploited for food, medicines, pets and scientific research. If we are to maintain the Planet's biodiversity species conservation in situ must be a priority. Where species are already on the brink of extinction captive breeding programmes are often viewed as the only hope of maintaining and enhancing wild populations.</p> <p>Monitoring existing populations and habitats is critical in assessing the urgency of the issues involved in wildlife conservation and sustainable population management and techniques utilised are discussed.</p> <p>This module develops a student's understanding of the problems facing wildlife and the implications thereof. The conservation and management of wildlife in situ is considered. The issue of human intervention and its nature is reviewed, together with the ethical and legal implications of wildlife management practices.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Essay • Presentation
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Year 2 – Level 5 Modules

Module Title	Credit Value	Module Summary (including associated assessments)
Research Skills	20	<p>This module is designed to enable participants to further develop the learning and development skills introduced in the Higher Learning Skills module in year 1 (or its equivalent). It provides the opportunity for students to focus on practice-based research and evaluation skills.</p> <p>The module will develop an appreciation of qualitative and quantitative methodology, research methods and critical thinking skills appropriate to the subject area. This will provide a foundation for research at level 6</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Open book assignment • Research Proposal
Animal Nutrition	20	<p>The provision of an adequate diet is fundamental to the keeping and management of production, collection, and companion animals. It is therefore essential that those involved in these activities have a sound theoretical and practical knowledge of the subject to ensure the health and welfare of the animal(s) in their care. This module focuses upon the physical and chemical properties of important</p>

		<p>biological molecules and dietary constituents and the application of this information to ration formulation. The student should develop an awareness of the dietary needs of a variety of animal species along with the range of factors that are important in the design of suitable feeding regimes. The module covers factors that affect the nutritional requirements of a range of animals. It also considers the health and welfare effects of failing to meet an animal's nutritional requirements. This module can be contextualised to allow the student to concentrate on the range of animals that they are studying. It provides a sound background to the concepts used in all animal nutrition and as such should be delivered in the first year of the programme. This will ensure that the student is in a better position to benefit from other modules that cover various aspects of animal nutrition in greater depth.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Report • Exam
Animal Behaviour and Training	20	<p>The study and understanding of animal behaviour is essential, not only to increase knowledge and fully appreciate the complexity of species' lifestyles, but also in respect of appropriate species management. It is equally applicable to pet species, production livestock, captive exotics and wildlife. Lack of awareness or inaccurate interpretation of animal behaviour can lead to welfare issues affecting both physical and mental well-being, reduced productivity and hence economic consequences, inadequate conservation strategies and/or increased risks to the health and safety of proximate personnel and/or other animals.</p> <p>This module is designed to provide learners with a sound understanding of the evolving processes of ethology, including the historical basis of animal study and influential animal behaviourists, to the more modern approach including the relevance of fieldwork. Controls of behaviour will be explored alongside the significance of behaviour on individual success and species' survival. Learning theories will be discussed, with species' examples used as illustration. Animal behaviours will be investigated a range of situations, including communication, social, feeding, and reproductive behaviours and survival strategies. The management of animals in terms of facilitating full expression of their natural behavioural repertoire and the benefits there of will be discussed, and the practicalities that may prevent this will be considered. The development display and implications of aberrant behaviours will also be reviewed.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Exam • Presentation

Anthrozoology	20	<p>The relationships between animals and humans are long standing, complex and continually evolving. The nature of our use and involvement with animals reveals much about the nature of human values and society itself. Domestication, production livestock, wildlife utilisation, working animals, sport use and pet keeping feature in societies throughout the world. Attitudes to animals vary widely, therefore an open mind, appreciation and tolerance of these differences is required. This module develops the learners' knowledge of the historic and changing modern roles of animals in human society. It is designed to encourage learners to analyse and appreciate the factors that influence human attitudes towards animals and the status of and roles animals play in different human societies and cultures.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Essay – 1500 words • Presentation
Reproductive Biology and Genetics	20	<p>This module is designed to develop the learner's understanding of the issues and processes involved in a successful breeding programme. It explores both the mechanics, ethics and welfare considerations of breeding, factors that effect and influence breeders and stock, reproductive strategies and technological advances used in animal reproduction.</p> <p>Learner's will to develop an understanding of how and why genetics and heredity influence breeding programmes and bloodlines in different animals. They will explore ethics, welfare and management of breeding and young stock in order to optimise production, fix type and ensure health and welfare of the animals bred. The module with also touch upon the ethical and legislative elements (including Animal Welfare law) of breeding animals and explores how the technological world has and will influence reproductive potential.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Investigative Report • Exam
Zoo Animal Management	20	<p>This specialist module will appeal to students who work, or have an interest in, animal collections or zoological and conservation societies. Students may be working in zoos, safari parks, aquaria, bird sanctuaries and other exotic animal collections and wish to enhance their knowledge and skill set.</p> <p>In this module emphasis is placed on your study of current zoo husbandry techniques, modern enclosure design, good management to promote high welfare standards, and skills that are required by keepers to be effective members of the zoo community.</p> <p>In undertaking this module, you will examine the management of health, welfare, and nutrition for a range of zoo species. The scope of your studies will also encompass key topics such as handling, welfare, behaviour, training, record keeping,</p>

		<p>enclosure design, legislation, and the global community in a zoo context.</p> <p>Components of the European Professional Zookeeper Qualification Framework (EPZQF) will be incorporated into this module, assisting students to build competencies that are required and recognised across the European Zoo Industry.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Essay • Group Seminar
Year 3 – Level 6 Modules		
Module Title	Credit Value	Module Summary (including associated assessments)
Dissertation	40	<p>This module allows students to work on an academic research project of their own choosing, utilising evidenced based methodologies and using appropriate research tools. This research project could be completed in conjunction with local businesses/charities, as well as either student utilising existing data, collecting their own data or undertaking an evaluative project. Each student will be allocated a supervisor who will advise on choice of topic and on the progress of the work. Students will be encouraged to use the research project as a summative exercise. Through which to evaluate their own academic progress during the degree programme. The dissertation may take the form of either a discursive, structure and evaluative thesis or a data-based project. Learners completing a project will be given an opportunity to envisage, design, and implement a piece of research that will entail collecting, analysing, and interpreting original data in the light of extant knowledge. It will also provide them with practical skills in participant recruitment, research ethics and design, project management, data analysis, and communication that will galvanise their employability profile.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Report • Presentation
Applied Animal Behaviour and Welfare Science	20	<p>Animal welfare is a high priority for anyone working with animals, and a thorough understanding of the factors that influence welfare and an ability to recognise indicators in animals is essential. The module explores both positive and negative welfare states and examines how physical, behavioural and emotional factors impact on quality of life. Welfare frameworks such as the Five Welfare Needs and Five Freedoms are debated. This module introduces a number of scientific methods for the assessment of animal welfare and the value of physiological responses and changes in behaviour as indicators of overall welfare are explored.</p> <p>This module also evaluates the influence of genetics and</p>

		<p>environment on normal and abnormal behavioural development. It will develop an appreciation of the natural behavioural patterns of animals and how they are of key relevance when determining an animal's captive requirements. This module will present the scientific basis for the modification of animal behaviour as a way of improving animal welfare.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Essay • Report
Science Communication for Animal Scientists	20	<p>This module aims to give students an understanding of how modern science is disseminated to the public via a range of science communicators and how science is communicated to governments, politicians, and policy makers.</p> <p>Students will examine strong and poor strategies for communicating science to various audiences and how science information and misinformation can be used to change public perception. Students will examine the role of written press, TV, radio, websites, blogs, etc. and using case studies, will look at the approach of the press and the impact on the public and government policy.</p> <p>Examples utilized will be current within the industry and research fields, which may include topics such as livestock management, GMO, captive animal welfare, and domestic species breeding practices. Students will use reflections on these strategies to create select forms of media to engage a range of audiences.</p> <p>This module aims to provide students with a series of multidisciplinary skills for use in industry and academia. Continuous technological advancements mean that animal scientist roles can range from field work to marketing and liaising with the public or government officials. By providing students with the opportunity to analyse communication strategies and create their own targeted media, they will be appropriately skilled to meet the demands of future employers.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Presentation • Multimedia and reflection
Comparative Animal Nutrition	20	<p>Nutrition is a broad discipline, encompassing elements of biochemistry, physiology, endocrinology, immunology, microbiology, and pathology. Throughout this module students will revise the major principles of nutrition of both domestic and wild species, taking a comparative approach, recognising that there are considerable differences in nutrient digestion, metabolism, anatomy and physiology and daily energetic requirements. An advanced understanding of the range of nutritional needs of animals is a key factor for anybody working with in a Land based setting.</p> <p>The main focus will be on mammalian (wild, farm, equine,</p>

		<p>companion and small animal species) and avian (wild, exotic and domestic) species exploring differences in food selection, acquisition and digestive strategies. The nutritional needs of case study species will cover a broad range of topics including digestive physiology, metabolic disorders, and specific feed requirements within life stages and for differing workloads with particular attention being paid to nutritional and metabolic idiosyncrasies. Students will revise and consolidate previous study of nutrition and apply this to complex situations in selected species.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Essay • Case study
Conservation Biology	20	<p>Conservation Biology is the scientific study of biodiversity with the aim of protecting species, habitats and ecosystems. In this module students will review biodiversity and its importance. Threats to biodiversity will be critically analysed within the context of sustainability. In this module students will review the drivers of extinction utilising the IUCN Red List and other conservation assessment tools to assess the conservation status of individual species and to identify which species to save. The ethics of saving only charismatic species, umbrella species and flagship species versus saving other species will be examined.</p> <p>Students will appraise the features of effective conservation programmes and identify reasons for failures of others. Methods for measuring outcomes in conservation will be critically analysed. Students will explore which aspects of animal welfare are fundamental to the success of captive breeding programmes. Comparing and contrasting issues and case-study examples from in-situ and ex-situ breeding programmes will enable students to justify the most effective approaches for breeding animals in captivity for conservation.</p> <p>The core of the module will be delivered by Easton campus staff together with significant input from practicing researchers and practitioners in conservation. Guest speakers from ancillary businesses, conservation projects and charities will also be involved.</p> <p>There may be the additional opportunity, subject to interest and current travel parameters, to undertake a residential field trip to the Durrell Institute in Jersey, a world-renowned conservation and research facility, to support the study of this module and provide appropriate content towards assessments. This trip would provide hands on experience coupled with lectures delivered by the institutes qualified staff members. The cost of this trip would be in addition to course fees and would need to be met by the student in full by a specified date to ensure a guaranteed place on the trip. Specific costings for a student place will be calculated each year and are subject to change.</p>

		Assessment: <ul style="list-style-type: none"> • Field study report • Essay
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Awards

On successful completion of the course, students will be awarded a UEA BSc (Hons) Animal Science

Course Delivery

The full BA programme will run over 3 years with students attending two days per week. Each 20-credit module will contain 48 hours of lectures/tutorials with students expected to undertake around 152 hours of private study. Students also receive 3 hours of personal tutoring per year. Students will complete 120 credits per academic year and therefore the programme will be full time.

The course is mainly delivered at Easton College, Bawburgh Road, Norwich, NR9 5DX.

Course Assessment

Assessment methods will include exams, assignments, and presentations.

Course Team

The academic staff delivering this course are drawn from a team that includes teaching specialists and current practitioners. All staff are qualified in their subjects with their own specialist knowledge to contribute.

Course Costs

The tuition fees that new students pay will be fixed for the duration of the course and will not be subject to any further increases.

Payment of tuition fees is due at the time of enrolment and is managed in accordance with the Course Fees & Eligibility Statement and Rules and Regulations.

Students are likely to incur other costs for books, printing, and other learning materials they may choose to buy, and the cost incurred for printing two copies of their final year dissertation. This should amount to a total of not more than £300 per year.