Anglia Ruskin University | Cambridge Ruskin International College

Undergraduate Pathway: Sports Science

BSc (Hons) Sport and Exercise Science
BSc (Hons) Sport and Exercise Therapy
BSc (Hons) Sports Coaching and Physical Education
BSc (Hons) Strength and Conditioning with Rehabilitation

Element Overview:

Interactive Learning Skills and Communication (ILSC)

This Element has been designed to help students develop their academic literacy, and research and communication skills in preparation for undergraduate study. The areas of reading, writing, speaking, and listening will be covered. ILSC also helps students understand the institutional culture, practices, norms and expectations of the UK higher education.
A subsidiary aim of this Element is to ensure that students develop transferable skills of effective and professional communication to support ongoing study, as well as providing a basis to foster career and life-building skills.

Information and Communication Technology (ICT)

No previous technical experience is required for this Element, which provides students with an introduction to practical ICT skills. This foundation will be needed for academic success across many areas of higher education. The students will use industry standard office productivity software and techniques to produce presentations, written assignments, and charts and tables in spreadsheets. Alongside practical skills, fundamental topics surrounding technology use will be discussed, together with societal and ethical perspectives. The Element will enable students to discuss the main challenges facing society and consider the implications of their technology use.
By the end of the Element, students should have sufficient mastery of the Microsoft Office productivity suite to allow them to plan and produce presentations, use functions and write formula to display, format and analyse quantitative data and produce written assignments to a standard appropriate to higher education.

Psychology

This Element aims to introduce students, from a broad range of degree programmes, to psychology. The main psychological approaches (cognitive and behavioural; psychodynamic; developmental, social and biological) will be discussed in relation to current psychological theory. Current and real-world applications of these approaches will also be discussed. Student will be given an introduction to psychopathology through the discussion of mental health disorders. In addition to these approaches, discussion of the mind/brain separation will also be introduced via the psychological topics to provide students with knowledge of psychology as a humanities subject. Research methods and psychology as a social science will also be covered to provide students with an understanding of scientific research.

Maths for Scientists

Foundation Maths for Science is a course that ensures students on the extended programmes for degrees in the areas of Life Sciences, Biomedical and Forensic Sciences, and Vision and Hearing

Sciences have the necessary basic mathematical skills required for entry to level 4. By the end of the course, students will be able to carry out basic mathematical manipulations and understand the relevant key concepts required in order to progress to their chosen degree course. Each mathematical concept is introduced by a lecture, in which examples of how to use and apply the concept are demonstrated. Students practise problems in a tutorial for each topic, using worksheets given out in advance of the sessions. The worksheets include problems applied to the various degree pathways to which the students will progress, to indicate the importance and applicability of mathematics to their future degrees. The subjects covered are a range of arithmetic skills, algebra, areas and volumes, trigonometry and basic statistics.

Cellular Biology

In this Element students will study the structure and function of cellular organelles, membranes and transport systems, in both prokaryotes and eukaryotes. Eukaryotic cell diversity will focus on mammalian blood composition, and the structure and function. In addition, cell metabolism - the biochemical processes undertaken in living organisms - is a key focus of this Element. Cellular respiration of glucose and the role of mitochondria will be discussed as well as the fundamental principle of biology in the ability to renew (cells) and reproduce, both sexually and asexually; the mechanisms of cell division via mitosis and meiosis.

The composition of cells, structure and function of the four groups of macromolecules - proteins, carbohydrates, nucleic acids and lipids - will be studied. A specific focus will be the mechanism of action of enzymes and factors such as pH and temperature that affect their function. This Element will provide students with an introduction to key processes operating within living organisms, including energy provision, transport, control and co-ordination alongside key ecological concepts.

Biology- Physiology

This element will study the science of body functions and their relation to the structure, or anatomy, or the organism (physiology). In this element, main organ and regulatory systems that work to enable the body to function and respond to change, whilst maintaining a constant internal environment, will be studied. Although this element will focus mainly on the human body as an example of a frequently studied organism, reference to other organisms will be made to illustrate particular principles or to contrast different systems and mechanisms.
The structure and function of the major organ systems, including the cardiovascular, respiratory, gastrointestinal, musculoskeletal, nervous, endocrine, reproductive, and immune systems will be studied. To function, the human body is required to maintain its internal environment within narrow limits. The homeostatic mechanisms needed to maintain homeostasis will be investigated and how they respond to differing conditions examined, with particular emphasis on thermoregulation and osmoregulation. Examples of negative feedback will be used throughout the course to illustrate the importance of how homeostasis is maintained. Classification and the basic principles of genetic inheritance will be introduced and considered in the context of Darwin's theory of natural selection.

Chemistry

This element provides an elementary introduction to chemical science. No prior knowledge of chemistry is assumed. The study of materials and the undergoing chemical changes will be discussed. These principles will then be developed further by exploring the periodic table, chemical equations, calculating concentrations, quantitative chemical analysis such as colorimetry, chemical equilibria and organic chemistry.

The practical element of the course will allow students to gain practice in some basic laboratory techniques based on the concepts covered in the lectures. In addition, tutorials will be held for students to ask questions and to practice exam-style questions from the relevant lectures. Laboratory experience and exposure will also equip students with required transferable skills for their University study. The focus will be on good laboratory practice and sustainable approaches to chemistry.

Physics for Life Sciences

This element introduces the principles and laws of physics which underpin all life sciences. No prior knowledge of physics is assumed, and the focus will be on those aspects which are specific to the requirements of students for Level 4 and beyond. The element will be taught with a mixture of lectures, workshops, tutorials and practicals.
The element will encompass aspects such as how organisms move in relation to their environment; how organisms perceive their environment in terms of light and sound; how the physics of fluids and gasses affect the anatomy and physiology of organisms; how electricity is used to allow communication, how radioactivity impacts on organisms, and the applications of physics in modern medicine. The practical aspect of this element will allow the students to develop an understanding of how the theory they are taught in lectures is applied in practical situations.