

Microbiology

 BSc (Hons)

COURSE DETAILS

- A level requirements: [ABB](#)
- UCAS code: C500
- Study mode: Full-time
- Length: 3 years

KEY DATES

- Apply by: [25 January 2023](#)
- Starts: 25 September 2023

Course overview

Our BSc Microbiology course involves the study of microorganisms with particular emphasis on the biology of bacteria, viruses and fungi. In spite of their size, the impact of microorganisms on the planet is so extensive that life as we know it could not exist without them.

INTRODUCTION

Microorganisms cause many of the known diseases of humans, animals and plants. Knowledge of microbiology will enable you to improve the quality of our lives in relation to the environment, to fight disease, and to combat pollution. Microbiology plays a key role in genetic engineering and other modern biotechnologies, such as antibiotic production and the exploitation of new sources of food and energy.

Our degree programme aims to give you an appreciation of the full range of Microbiology while also allowing you to pursue areas of specific interest. During the course of your degree you will study modules such as Virology, Biotechnology, Bacterial disease mechanisms, Microbiomes and Advanced

Microbiological Techniques. You will also have the opportunity to select from a wide range of optional modules.

The programme is taught by a mixture of lectures, workshops, seminars, tutorials, and laboratory courses, culminating in an extended research project in your third year. This is your chance to study an area of cutting edge microbiology in depth, while getting a real taste of life in an active research environment and the opportunity to work alongside microbiologists working in the Institute of Infection, Veterinary and Ecological Sciences, the Institute of Systems, Molecular and Integrative Biology and the Liverpool School of Tropical Medicine.

WHAT YOU'LL LEARN

- Independent and collaborative work
 - Becoming literate in finding, interpreting, evaluating, managing and sharing information
 - Self-management skills
 - Problem-solving
 - Using programming language for analysis and visualisation of large data sets
 - Using lab equipment correctly and safely
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Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

YEAR ONE

In year one, you will develop key skills and subject knowledge that will equip you for more advanced and specialised modules in the later years of the degree. You will recognise the basic

structure, composition and function of cell mechanisms and explore key concepts, theories and research processes.

COMPULSORY MODULES

MOLECULES AND CELLS (LIFE101)

Credits: 15 / Semester: semester 1

This module describes the detailed composition of cells and the processes by which they obtain and generate energy, grow, replicate and eventually die.

The lectures will be supplemented with on-line resources and illustrated with some of the latest research methods that are used to study cell structure and function.

Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module.

The module will be assessed by both continuous assessments and by a final examination.

EVOLUTION (LIFE103)

Credits: 15 / Semester: semester 1

This module describes the evolutionary processes that have resulted in the generation of the diverse life forms that populate the planet.

This includes the theory of evolution by natural selection, and the genetic processes that result in gene evolution and diversity.

Selected scenarios and case studies will apply evolutionary concepts, showing the fundamental importance of evolution to a broad range of the life sciences.

The module is split into two parts: the first part (A) is the same for all students, the second part (B) contains a number of parallel strands tailored to students interest.

Students will be advised by their programme director which strand to follow.

The lectures will be supplemented with a variety of on-line resources.

Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module.

The module will be assessed by continuous assessments.

GRAND CHALLENGES IN BIOLOGY (LIFE105)

Credits: 7.5 / Semester: semester 1

This module introduces students to how grand challenges (scientific and societal) are addressed in universities and in particular at the University of Liverpool. Students will be introduced to four major topics (Infections and Global Health, Ageing, Food Security, Personalised Medicines) by experts in the respective fields. Emphasis will be placed on students understanding concepts and assembling information rather than memorizing facts. The material will be delivered based on the concept of a scientific conference with plenary talks and parallel sessions presented by the lecturers, and (in light of Covid-19 driven procedures at scientific meetings) a video session driven by student input. Assessment of lecture material and associated readings will be by continuous assessment.

EXPERIMENTAL SKILLS IN CURRENT BIOLOGY (LIFE107)

Credits: 15 / Semester: whole session

This is the first practical module that students will take in the School of Life Sciences. The skills that students acquire will be needed for other practical modules that they will take in semester 2 Year 1, and during Year 2 and will prepare them for their year 3 research project and for their subsequent career.

This module is designed to teach the basic multidisciplinary skills required in the biological sciences.

It aims to develop careful working practices, experimental design and interpretation of results. Skills acquired in this module will be both utilised and enhanced by the co-requisite module LIFE 109 (communication and study skills and quantitative skills).

The way in which LIFE 107 is taught and assessed is designed to place emphasis on encouraging students to take responsibility for their own learning. Demonstrators and academic staff will be on hand to answer questions or show students how to use lab equipment.

Resources will be available online via VITAL and include a weekly Blog, technical manual, module handbook, lab instruction manual and weekly lectures.

The module will be taught in weekly practical classes and it will be assessed through continuous assessment (assessment 1-2) and a final exam (assessment 3).

MICROBIOLOGY (LIFE110)

Credits: 15 / Semester: semester 2

QUANTITATIVE SKILLS FOR THE LIFE SCIENCES (LIFE113)

Credits: 7.5 / Semester: semester 1

For any student studying the Biological Sciences a firm grasp of quantitative skills is an absolute necessity. This module will provide you with the knowledge and skills you need to manipulate numbers and analysis/visualise data using digital tools. The module emphasises a "learn by doing" approach to the development of quantitative skills and is heavily workshop based.

BIOCHEMICAL METHODS (LIFE122)

Credits: 7.5 / Semester: semester 2

This course introduces widely used laboratory concepts and practical techniques that are relevant to academic research, industry and medical applications.

COMMUNICATION AND STUDY SKILLS FOR THE LIFE SCIENCES (LIFE130)

Credits: 7.5 / Semester: whole session

OPTIONAL MODULES

BIOCHEMISTRY AND BIOMEDICAL SCIENCES (LIFE102)

Credits: 15 / Semester: semester 2

This module will provide the foundation for future studies on the molecular basis of life and disease. It covers basic biochemistry and immunity and how these fields can provide a molecular explanation for life and disease. The module will encourage confidence, teamwork and communication through active learning in lectures and workshops centred around authentic assessments.

INTRODUCTION TO ANIMAL INFECTIOUS DISEASES, EPIDEMIOLOGY AND PUBLIC HEALTH (LIFE126)

Credits: 15 / Semester: semester 2

The module will introduce the biology of a range of veterinary infectious diseases. Basic concepts in disease epidemiology, surveillance and control will be introduced and the effects/association diseases have on animals, society and the environment. Students will be taught in small tutorial groups by research active teaching staff to develop information on a specific disease and present their group findings as a PowerPoint presentation at a "mini-conference". The module is assessed through the presentation and a final exam.

INTRODUCTION TO GENETICS AND DEVELOPMENT (LIFE128)

Credits: 15 / Semester: semester 2

This module introduces students to modern genetics and developmental biology at an introductory level. Using examples taken from across the biosciences and medicine, students will develop their understanding of the inheritance of genetic traits, how mutation can lead to disease and the molecular techniques used to study genes. They will also be introduced to development from meiosis and germ cell formation through to organogenesis, emphasising both the underlying genetic and molecular mechanisms involved and the embryological processes. Students will explore current advances in both fields including current and potential use of gene editing techniques and stem cells in therapeutics, and will consider the ethical implications of these advances.

The module is taught through a combination of lectures and workshops incorporating problem solving and discussion, with an emphasis on an appreciation of the techniques and experimental evidence underpinning the material. Assessment is by a combination of a written examination and a group ethics poster presentation.

Programme details and modules listed are illustrative only and subject to change.

YEAR TWO

In year two, you will have several compulsory modules but you

can choose from a range of optional modules that allow you to

pursue and focus on your own specific interests.

COMPULSORY MODULES

VIROLOGY (LIFE209)

Credits: 15 / Semester: semester 1

This module is an introduction to modern virology.

The module provides an overview of different virus families and aims to explain the fundamental properties of different viruses, their infection in different organisms, their detection and control, and positive applications of viruses.

The lectures will be supplemented with online resources. Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module.

The module will be assessed by both continuous assessments and by a final examination.

BIOTECHNOLOGY (LIFE210)

Credits: 15 / Semester: semester 2

This module will examine the ways in which biological processes are applied for solving technological processes.

Examples of specific processes will be used including production of antibiotics, biomass, single cell protein, biopolymers, vaccines and other therapeutic agents.

The lectures will be supplemented with on-line reading resources. Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module.

The module will be assessed by two assessments.

ESSENTIAL SKILLS FOR THE LIFE SCIENCES 2 (LIFE223)

Credits: 15 / Semester: whole session

This module will continue, extend, and broaden the transferable skills developed in Year 1. It will focus on improving the students' analytical, communication, quantitative, and employability skills. The communication skills component is assessed through a portfolio whereas the quantitative skills component is assessed through a group poster and SAQ.

TECHNIQUES IN CELL BIOLOGY (LIFE227)

Credits: 7.5 / Semester: semester 1

This practical module aims to provide practical and theoretical experience in techniques currently used in cell biology. These techniques include assay, culture, histology and microscopy. The module is assessed through coursework and a final exam.

ADVANCED MICROBIOLOGICAL TECHNIQUES (LIFE228)

Credits: 7.5 / Semester:

This practical module aims to provide students with an opportunity to learn and apply a range of microbiological laboratory techniques in order to develop their ability to plan and execute research projects in microbiology. The module is continuously assessed.

OPTIONAL MODULES

FROM GENES TO PROTEINS (LIFE201)

Credits: 15 / Semester: semester 1

This module aims to provide students with an understanding of the fundamental processes whereby genetic information is expressed as proteins in prokaryotic and eukaryotic cells. Lectures will be supplemented with on-line resources. Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module. The module will be assessed two assessments.

CELL SIGNALLING IN HEALTH AND DISEASE (LIFE202)

Credits: 15 / Semester: semester 2

This module will describe the molecular mechanisms that allow cells to communicate with each other;

The basic properties common to all signalling pathways will be studied and then a series of individual pathways will be examined in more detail, in the light of these general principles;

The importance of cellular signalling mechanisms will be illustrated by examining diseases (e.g. cancer, diabetes, cardiovascular disease, obesity, neurological disorders) that result from defects in these mechanisms;

The lectures will be supplemented with on-line resources. Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module;

The module will be assessed by continuous assessment

MOLECULAR AND MEDICAL GENETICS (LIFE208)

Credits: 15 / Semester: semester 2

This module aims to introduce students with an interest in Genetics and Molecular Biology to the range of biological mechanisms that control structure and stability of the genetic material and their impact on health and disease.

It uses examples from both prokaryotic and eukaryotic organisms, to develop principles that explain DNA replication, repair and recombination. These principles and processes are then discussed in a clinical/medical genetics context.

The lectures will be supplemented with on-line resources. Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module.

The module will be assessed by both continuous assessments and by a final examination.

VETERINARY PARASITOLOGY AND PUBLIC HEALTH (LIFE216)

Credits: 15 / Semester: semester 2

The aim of this module is to develop knowledge of the important parasitic diseases of companion and food producing animals in the U.K. and globally, leading also to an understanding of the importance of these diseases to human and animal public health. The lectures will be supplemented with on-line resources.

Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module.

The module will be assessed by two items of continuous assessment and by a final examination.

THE IMMUNE SYSTEM IN HEALTH AND DISEASE (LIFE221)

Credits: 15 / Semester: semester 1

The module will develop knowledge and understanding of the immune system, the molecules, cells and tissues that are involved in its function, its role in combating infection and how its dysfunction can contribute to disease.

Lectures will be supplemented with on-line resources. Problem solving workshops dedicated to case studies will be held to help students prepare for the assessments. Students will be given guided reading, and formative and summative assessment exercises held during the course will enable students to monitor and evaluate their progress and to prepare for the final assessment.

The module will be assessed by two assessments.

E-BIOLOGY: INFORMATICS FOR LIFE SCIENCES (LIFE225)

Credits: 7.5 / Semester: semester 1

Many aspects of modern biology are being revolutionized by high-throughput methods that make copious amounts of data available in digital form. The aim of this module is to provide students with a practical appreciation of the nature and significance of this revolution. While the focus will be on analysis of data from areas such as genome sequencing, gene expression, and protein structure studies, the module will also look at use of such data in the context of understanding higher order phenomena within cells, such as metabolism, gene regulation, and protein-protein interaction. The module is continuously assessed.

ADVANCED GENETICS TECHNIQUES (LIFE226)

Credits: 7.5 / Semester: semester 2

This practical module aims to provide practical experience in a range of genetic techniques including the production and characterisation of specific deletion mutants, mutagen screening, cytogenetics and karyotype analysis, population studies, molecular analysis of genomes and bioinformatics. This module is required for students intending to enter the Genetics Honours School. The module is continuously assessed.

MOLECULAR SCIENCE (LIFE237)

Credits: 7.5 / Semester: semester 1

This module is a 6 weeks molecular biology practical to provide experience in techniques to isolate, clone and analyse genes (analysis of DNA fragments by agarose gel electrophoresis, PCR, transformations, plasmid DNA preparations, gene cloning). The module has a range of different formative and summative assessments to include in-course problem-solving exercises, online quizzes and abstract writing, which ensure the student becomes confident to continue genetic manipulations in specialist Year 2 Semester 2 practical modules and for project work in Biochemistry, Genetics and Molecular Biology. The module will encourage confidence, teamwork and communication through active learning in lectures and practicals centred around authentic assessments.

E-BIOLOGY: INFORMATICS FOR LIFE SCIENCES (S2) (LIFE242)

Credits: 7.5 / Semester: semester 2

Many aspects of modern biology are being revolutionized by high-throughput methods that make copious amounts of data available in digital form. The aim of this module is to provide students with a practical appreciation of the nature and significance of this revolution. While the focus will be on analysis of data from areas such as genome sequencing, gene expression, and protein structure studies, the module will also look at use of such data in the context of understanding higher order phenomena within cells, such as metabolism, gene regulation, and protein-protein interaction. The module is continuously assessed.

Programme details and modules listed are illustrative only and subject to change.

YEAR THREE

In year three, you will be building on the knowledge that you have gained in previous years culminating in a research project. There are multiple options in optional modules to specialise in areas of study that you would like to pursue as part of your

career plan. There is also an option to take part in a work-based placement.

COMPULSORY MODULES

BACTERIAL DISEASE MECHANISMS (LIFE318)

Credits: 15 / Semester: semester 2

This module describes the mechanistic diversity and common themes of bacterial infection. The pathogenesis of infection is described from first contact with the host to explain the importance of attachment, colonisation and avoidance of the immune system through to persistence and chronic infection. Pathogenesis is described in terms of common themes and the variation between pathogens due to their complement of virulence determinants by covering multiple, key bacterial pathogens. Lectures are delivered on broad aspects such as subversion of the host, expression of bacterial toxins and expression, motility loci and intracellular survival. Specific disease mechanisms used by major human pathogens are outlined to demonstrate the complexity and multicomponent aspects leading to successful infection. The use of infection models to study infection and techniques to assay the contribution of both individual and multiple genes are described. The importance of temporal regulation of virulence determinant expression is outlined along with gene mobilisation via phages, plasmids and transposons. Resistance to antimicrobials and the future prospects for treatment are featured. The module is assessed by formal examination and continuous assessment.

VIRAL DISEASE MECHANISMS (LIFE320)

Credits: 15 / Semester: semester 2

This module provides a review of the role of viruses as important pathogens of humans and animals. A broad overview of viral virulence mechanisms, immune evasion and vaccine development will be given followed by detailed consideration of significant groups of viruses. The module is assessed by formal examination and continuous assessment.

MICROBIOMES - MICROBIAL DIVERSITY AND HOST INTERACTIONS (LIFE343)

Credits: 15 / Semester: semester 1

Microbiome research is a new and important area of microbial research. This course is relevant to the full range of students in health and life sciences from ecologist to health professionals.

RESEARCH PROJECT (LIFE363)

Credits: 30 / Semester: whole session

This module provides students with experience in the planning, design, and execution of a research project in the area of their programme discipline. The project will encompass a range of approaches including laboratory work, fieldwork, outreach work and data, and / or literature analysis depending on the nature of the project. Students will write an evaluative report on a relevant scientific area and work in collaboration with an academic supervisor to develop, plan, carry out, and record research work. The supervisor will hold regular discussion meetings with the student, and both will contribute to a reflective record of progress. Students will be expected to communicate their findings orally and in a variety of written formats.

OPTIONAL MODULES

ADVANCED SKILLS IN MICROBIOLOGY (LIFE325)

Credits: 15 / Semester: semester 1

This module aims to provide a set of communication and critical reflection skills in the context of Microbiology. These skills will help students enhance the execution and presentation of their research project, prepare them for Level 6 assessments and maximise their employment and personal development opportunities. The module is taught through seminars and tutorials, but has a strong emphasis on independent learning. Learning material is provided through VITAL. The module is assessed by continuous assessment.

ADVANCED BIOTECHNOLOGY (LIFE327)

Credits: 15 / Semester: semester 1

This module describes the exploitation of microorganisms and microbial processes in the context of modern developments in biotechnology.

Economic and ethical aspects of the development of novel products and the potential environmental benefits and risks of using biotechnological processes will be examined.

Specific aspects to be examined will be antibiotic production, plant biomass conversion, microbial informatics and biofuels.

The module is taught through standard lectures and workshops, and it is assessed by formal examination and continuous assessment.

TOPICS IN GLOBAL HEALTH (LIFE340)

Credits: 15 / Semester: semester 2

The module gives students a broad understanding of the public health significance of tropical infectious and non-infectious diseases.

It aims to enhance awareness of the global distribution of disease and the impact of poverty induced inequalities in access to effective and affordable treatments.

The module is assessed by equally weighted formal examination and continuous assessment.

GENOME BIOLOGY AND TECHNOLOGY (LIFE342)

Credits: 15 / Semester: semester 2

This module aims to develop an advanced understanding of genome structure, organisation and evolution across all domains of life.

In addition it will provide advanced awareness of genomic technologies, how they can be applied to a wide range of biological research questions as well as translational applications.

The module will provide molecular, comparative and evolutionary perspectives to allow students to appreciate how knowledge from different systems can be applied to the understanding of the human genome. Also, how genomes from a range of species can develop our understanding of different biological phenomena, such as genome expansion, polyploidy and the evolution of sex chromosomes.

Modern advances in technology will be explained with examples of how they have advanced our understanding of subjects as diverse as cancer and microbial ecology.

The module is assessed through continuous assessment and a final exam.

PARASITOLOGY (LIFE361)

Credits: 15 / Semester: semester 1

This module aims to describe the major features of the structure and life histories of a range of protozoan and helminth parasites of humans. It describes the causes of major clinical symptoms and pathology attributable to these parasites and describes major approaches to their prevention and control. The module is delivered in four main themes, diagnostics, pathogenesis, epidemiology, and control. The module will be delivered through lectures and is assessed by formal examination and continuous assessment.

LIFE SCIENCES WORK BASED PLACEMENT (LIFE399)

Credits: 15 / Semester: semester 1

This module allows students to undertake an employment placement that will be undertaken during the summer-break between Year 2 and Year 3. Students will have to find and secure their own placement, which will need to be approved by the module leader beforehand. Placements will typically be 6-8 weeks. Early in Year 2 there will be an introductory event to present the module and advise students on how to search for placement opportunities. This session will be available to all students (including those who do not wish to enrol on the placement module). Students will be encouraged to search for placements during Semester 1, with the support of Academic Advisers and the Careers and Employability Service. Other seminar activities will take place during Semester 2 of Year 2 to prepare students for the placement work. More taught sessions will be delivered in early Semester 1 of Year 3, which include lectures on relevant psychological theories and research (e.g., workplace performance, leadership, motivation) and reflective group sessions on placement experience. The module will provide students with an opportunity to develop their employability skills by direct engagement in a commercial, research, voluntary or similar professional organisation that will support future plans, develop skills and graduate attributes. Module assessments include a skill audit and reflective log to be completed before and during practical work placement, and final written recommendations-to-employer report based on reflection on the placement experience of the individual student and the wider cohort, supported by relevant employability and occupational theories.

Programme details and modules listed are illustrative only and subject to change.

HOW YOU'LL LEARN

You will experience a range of learning environments during your studies at Liverpool. These will include student-centred activities as well as lectures, tutorials, laboratory practicals, dissection classes, fieldwork, data handling sessions and computer workshops. Some of these activities will be performed individually, such as personal research projects, and others in small tutorial or project groups, in addition to formal lectures and workshops. You will have research staff as well as your own academic adviser for individual tuition on our acclaimed tutorial programme.

HOW YOU'RE ASSESSED

As well as factual knowledge and understanding, biologists need practical and organisational skills, and an ability to work both alone and with other people. We record development of these abilities through continuous assessment during each semester and by final examination.

LIVERPOOL HALLMARKS

We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.

Careers and employability

Employability is embedded into your course, from lectures through to integrating it within your chosen modules. Connecting you with the best student and graduate employers in the region. Career coaches to help you explore jobs, connect with employers and guide you through the application process.

4 IN 5 LIFE SCIENCES STUDENTS FIND THEIR MAIN ACTIVITY AFTER GRADUATION MEANINGFUL.

Graduate Outcomes, 2018-19.

- For those committed to a career as a professional scientist, higher degrees (MBiolSci, MSc, MRes, MPhil or PhD) at the University of Liverpool or elsewhere provide a flexible set of options for further study.
- In the public sector, Life Sciences graduates are in demand in research institutes, government departments, the National Health Service, forensic science and the Environment Agency.
- Commercial sectors that actively recruit graduates from the Life Sciences include the pharmaceutical, food, biotechnology, water and agriculture industries.
- A number of routes are available for graduates to enter the teaching profession one of which is taking a postgraduate qualification (PGCE).

PREPARING YOU FOR FUTURE SUCCESS

At Liverpool, our goal is to support you to build your intellectual, social, and cultural capital so that you graduate as a socially-conscious global citizen who is prepared for future success. We achieve this by:

- Embedding employability within your curriculum, through the modules you take and the opportunities to gain real-world experience offered by many of our courses.
- Providing you with opportunities to gain experience and develop connections with people and organisations, including

student and graduate employers as well as our global alumni.

- Providing you with the latest tools and skills to thrive in a competitive world, including access to Handshake, a platform which allows you to create your personalised job shortlist and apply with ease.
 - Supporting you through our peer-to-peer led [Careers Studio](#), where our career coaches provide you with tailored advice and support.
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Fees and funding

Your tuition fees, funding your studies, and other costs to consider.

TUITION FEES

Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support. [Learn more about tuition fees, funding and student finance.](#)

| UK fees Also applies to Channel Islands, Isle of Man and Republic of Ireland | |
|--|--------|
| Full-time place, per year | £9,250 |
| Year in industry fee | £1,850 |
| Year abroad fee | £1,385 |

| International fees | |
|---------------------------|---------|
| Full-time place, per year | £25,450 |

Fees stated are for the 2023-24 academic year.

ADDITIONAL COSTS

We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This includes the costs associated with placements or internships, and the optional field course in Uganda.

Find out more about the [additional study costs](#) that may apply to this course.

SCHOLARSHIPS AND BURSARIES

We offer a range of scholarships and bursaries to help cover tuition fees and help with living expenses while at university.

[Scholarships and bursaries you can apply for from the United Kingdom](#)

Select your country or region for more scholarships and bursaries.

Entry requirements

The qualifications and exam results you'll need to apply for this course.

| Your qualification | Requirements About our typical entry requirements |
|--|--|
| A levels | <p>Typical A level offer ABB</p> <p>Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is BBB with A in the EPQ.</p> <p>You may automatically qualify for reduced entry requirements through our contextual offers scheme.</p> <p>If you don't meet the entry requirements, you may be able to complete a foundation year which would allow you to progress to this course.</p> <p>Available foundation years:</p> <ul style="list-style-type: none"> • Biological Sciences (with a Foundation Year) leading to BSc (Hons) |
| GCSE | 4/C in English and 4/C in Mathematics |
| Subject requirements | <p>Biology and a second science, preferably Chemistry, at A level</p> <p>Also accepted as a second science: Environmental Science, Mathematics, Physics, Geography, Psychology, Geology and Applied Science.</p> <p>For applicants from England, where A levels in Biology, Chemistry or Physics have been taken, we will also require a pass in the Practical Endorsement</p> |
| BTEC Level 3 National Extended Diploma | <p>D*DD in Applied Science with a selection of preferred units in Biology and Chemistry, to include Distinction in Units 1 and 5 (Principles and Applications of Science I and II).</p> <p>For previous BTEC (QCF) qualification:</p> <p>D*DD in Applied Science with a selection of preferred units in Biology and Chemistry, with at least 120 Level 3 credits at Distinction.</p> <p>Please note alternative BTEC subjects are not acceptable for this programme.</p> |
| BTEC Applied Science unit requirements | View the BTEC Applied Science unit requirements. |
| International Baccalaureate | 33 points, including 6 in Higher Level Biology, and 5 in another Higher Level Subject |
| Irish Leaving Certificate | H1, H2, H2, H2, H3, H3 |
| Scottish Higher/Advanced Higher | Not accepted without Advanced Highers at grades ABB |

| Your qualification | Requirements About our typical entry requirements |
|------------------------------|--|
| Welsh Baccalaureate Advanced | Accepted at grade B as equivalent to a third non-science A level at grade B. |
| Access | 45 Level 3 credits in graded units in a relevant Diploma, including 30 at Distinction and a further 15 with at least Merit. 15 Distinctions are required in each of Biology and Chemistry. GCSE Mathematics and English grade C/4 also required. |
| International qualifications | <div style="border: 1px solid #ccc; padding: 5px; text-align: center;"> Select your country or region to view specific entry requirements. </div> <p>Many countries have a different education system to that of the UK, meaning your qualifications may not meet our entry requirements. Completing your Foundation Certificate, such as that offered by the University of Liverpool International College, means you're guaranteed a place on your chosen course.</p> |

ALTERNATIVE ENTRY REQUIREMENTS

- If your qualification isn't listed here, or you're taking a combination of qualifications, [contact us](#) for advice
 - [Applications from mature students](#) are welcome.
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THE ORIGINAL

REDBRICK