UNIVERSITY OF LIVERPOOL

Biochemistry BSc (Hons)

COURSE DETAILS

- A level requirements: ABB
- UCAS code: C700
- Study mode: Full-time
- Length: 3 years

KEY DATES

- Apply by: 29 January 2025
- Starts: 22 September 2025

Course overview

If you have a natural curiosity for science and a proven understanding of biology and chemistry, coupled with a desire to learn how science can be exploited for the benefit of mankind, then you have a fascinating career ahead of you.

INTRODUCTION

You'll study a broad range of tailored modules including biomolecular structure and function, metabolism and bioenergetics, and molecular cell biology, with the opportunity to specialise and carry out your own research-based project.

We also offer support for making career choices right from the beginning and you will have the opportunity to consider potential career pathways within and outside the broad field of biochemistry.

You'll learn and develop those important transferable skills in communication, team working, project management and computing with practical sessions and group work.

WHAT YOU'LL LEARN

- Analyse biochemical data and apply appropriate statistics
- Apply bioinformatics and computational biology tools to molecules of biochemical interest
- Apply biochemical knowledge in fundamental and clinical settings
- Understand how biochemistry underpins diverse biology, from bacteria to plants to humans
- Become literate in finding, interpreting, evaluating and managing information
- Communicate ideas effectively to a variety of audiences

- Work independently and collaboratively
- Develop critical thinking and problem-solving skills
- Use lab equipment correctly and safely

Course content

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

YEAR ONE

In this first year, you'll gain an understanding of core concepts of biology and biochemistry, as well as the fundamental principles of immunity, infection, and therapy. You will study how organisms develop and function and learn about biological challenges that affect the global environment. You will also develop bioinformatics and practical skills, and you will discover how to utilise quantitative skills.

COMPULSORY MODULES

BIOLOGY CORE CONCEPTS (BIOS101)

Credits: 30 / Semester: semester 1

The transition into higher education can be a challenging one. This module aims to aid students in their journey from further education learners into higher education students of the Biosciences. To truly appreciate the disciplines which make up the Biosciences we must first develop an understanding and appreciation of their commonalities. This module brings together the core concepts of biology at the macro through the micro levels. This will provide students with the opportunity to develop and enhance their knowledge of the Biosciences and the possible pathways which they wish to study further. A mix of learning & teaching methods will be used in this module which will include, but are not limited to lectures, active learning, and learning through assessment, plus the use of directed reading/multimedia resources. This module will be assessed by a midterm assessment comprising mixed multiple choice, multiple answer and matching item questions (30%). There will also be an end of module assessment which is split into two parts: Part A which will be a similar format to the midterm assessment (35%) and Part B which will comprise a data interpretation assessment (35%).

ORIGINS, SPECIALISATIONS, CHALLENGES AND THERAPEUTICS (BIOS102)

Credits: 30 / Semester: semester 2

In this module students will study in three blocks, the first is embryology and development of organ systems. The students will then continue to develop their knowledge of organ function in invertebrate and vertebrate animals (including humans) and compare these with organisms who have adapted their function to meet the challenges of a range of environments, in the second block. This approach has been taken to aid in our understanding of organ function from its commonalities to its varied differences. A cellular & molecular approach is used as students focus on the control, regulation, development and function of organs, organ systems & organisms. The third and final block has a focus on infection, immunity and microbial diversity.

The overall aim of this module is to facilitate the study of how cells develop and work together to form functional tissues and organs, and how this is imperative to the normal functioning of organisms and their adaptation, response and defence mechanisms.

The module will be taught through a combination of lectures and workshops, which will be supported with directed learning resources (reading/ multimedia).

There are three assessments. This module will be assessed by two in-course assessments, scheduled outside of the School of Biosciences two cycle assessment strategy and an end of module exam.

INTRODUCTORY PRACTICAL SKILLS IN BIOSCIENCES I (BIOS103)

Credits: 15 / Semester: semester 1

This is the first practical module that students will take in the School of Biosciences. The variety of experimental, quantitative and transferable skills that students acquire will be required for future practical modules that they will take in Year 1 Semester 2, 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 field of life sciences, provide an understanding of basic lab practice and safety and to allow application of theoretical knowledge to solve practical challenges. It will be taught through a combination of lectures, practical sessions, workshops and self directed learning.

This module will be assessed via three methods: continual assessment to assess understanding of practical skills (experimental, technical and computational/quantitative statistics), a practical skills observational assessment to improve research and experimental skills and a written scientific abstract to assess overall understanding and communication of research outputs through scientific writing.

FROM INDIVIDUALS TO ECOSYSTEM (BIOS104)

Credits: 15 / Semester: semester 2

Ecology explores the intricacies of our living environment, encompassing the spatial and temporal distribution of organisms, their dispersal patterns, population dynamics, interspecies interactions, community development over time, and the formation and functioning of diverse ecosystems. Evolutionary ecology explores the biological variations among species within this natural context, examining phenomena like rapid life cycles or long lifespans. This course provides a comprehensive overview of both foundational ecology and evolutionary ecology, addressing the challenges that natural populations and ecosystems face in our dynamic world.

The module will be delivered through, research-connected lectures by research active scientists. There are two assessments which assess students in interpreting scientific publications, while online tests assess their grasp of the covered topics. These assessments collectively contribute to evaluating students' knowledge and understanding of the subject matter.

STUDY AND COMMUNICATION SKILLS TUTORIALS (BIOS105)

Credits: 15 / Semester: whole session

This module will develop students' transferable skills. It will focus on improving the students' written, communication, presentation and employability skills via a series of fortnightly tutorials and lectures. As this module is taken by students on all programmes, to allow students to explore their interests different essay titles, journal papers and discussion topics relevant to students programme area of interest will be offered. Students will complete tasks that count towards a Portfolio and three larger assessments.

INTRODUCTORY PRACTICAL SKILLS IN BIOSCIENCES 2 (BIOS106)

Credits: 15 / Semester: semester 2

Biology is a practical science, whether you want to study disease in microbes, plants, invertebrate and vertebrate animals (including humans), understand the function of a gene, or how the behaviour of organisms can shape an ecosystem. In the first half of this module, all students will learn fundamental practical techniques that every biologist should be familiar with. Alongside the experimental skills, students will learn practical computational and bioinformatic methods that can be used to support and advance scientific understanding of the lab techniques. In the second half, students will split into three topical strands: Molecular Research, Anatomical & Physiological Research or Whole Organism Field Research. Students in each strand will learn a set of skills and techniques that are particularly useful for degree course, with a focus on their specific discipline. All students will learn how to safely and effectively carry out practical biology, skills that will be vital throughout the rest of your degree.

Learning and teaching is created and delivered by research-active scientists, ensuring that teaching is informed by the latest research and advancements in the biosciences, and is designed to be accessible, inclusive, and representative of the student cohort.

This practical will be assessed via three methods: a computer-based assessment to assess understanding of bioinformatic and computational skills; an individual practical skills assessment in the form of observation or online assessment to assess knowledge, understanding and application of knowledge; a written scientific report to assess data analyses and communication of research outputs through scientific writing.

Any optional modules listed above are illustrative only and may vary from year to year. Modules may be subject to minimum student numbers being achieved and staff availability. This means that the availability of specific optional modules cannot be guaranteed.

YEAR TWO

In your second year you'll expand your range of knowledge, building essential research skills in experimental design and analysis. You will also hone professional skills, preparing you for a career within or outside the broad field of biochemistry. You will study biochemical techniques, cell signalling, biochemical pathways, macromolecular structure and genetics. In addition, you will have optional modules enabling you to follow your interest in pharmacology, health and disease, or physiology.

COMPULSORY MODULES

GENETICS & IMMUNOLOGY FOR BIOSCIENCES (BIOS201)

Credits: 15 / Semester: semester 1

The science of genetics, including gene-editing and genome sequencing is a fast-moving and exciting area for biosciences study. In this module we will explore the fundamentals of genetics and genomics such that students can apply cutting-edge knowledge to the areas of the biosciences that interest them most. Students will be asked to consider the relevant ethical implications of current knowledge and technologies in genomics and genetics. In addition, we will expand the horizons of the module toward understanding of disease, by looking at the genomic, and physiological bases of immune defences against microbial enemies. The module is taught via a set of workshops in which students explore and develop their comprehensions working with groups, and their tutor. Students will be assessed by creating their own teaching materials (e.g. videos, powerpoint slides) as well as an end-of-module examination

INTERMEDIARY PRACTICAL SKILLS IN BIOSCIENCES (BIOS203)

Credits: 15 / Semester: semester 1

This practical skills module is designed to give you hands-on experience in a range of essential laboratory techniques, building on foundational practical skills developed in the first year of study. From protein purification to nucleic acid quantification and the use of general model systems, this module covers a variety of techniques that you need to further your practical development within the breadth of the Biosciences disciplines.

Through a series of interactive experimental sessions and live synchronous workshops, you will gain practical experience in a variety of analytical and quantitative experimental practices. You will also learn the underpinning knowledge behind some of the methodologies and the intricacies of experimental design, all the while supplementing your wider theoretical learning through experimental application of techniques to tackle problems across the Biosciences disciplines. Students will learn how to analyse collected data and communicate the findings effectively, with the opportunity to apply your newly acquired skills to research projects tailored towards your programme and fields of interest. This module will be assessed via a computer-based assessment to assess understanding of quantitative and computational skills, a group research output focused on experimental design and a written scientific report to assess communication of research outputs through scientific writing.

This module will expand your laboratory skills and allow the advancement of practical experiences in a range of essential techniques and equip you with the skills and knowledge you need to prepare you for your honours dissertation projects.

ADVANCED PRACTICAL SKILLS IN BIOMOLECULAR AND DRUG INTERACTIONS (BIOS204)

Credits: 15 / Semester: semester 2

This practical skills module is designed to give students hands-on experience in essential molecular biology, biochemical, and pharmacological-associated practical techniques through a series of interactive laboratory-based experimental sessions and live synchronous workshops. From recombinant DNA technology to protein expression, purification, enzyme kinetic assays, and drug interactions, this module covers a variety of techniques that students need to further their practical career within the Biosciences. Each topic is supported by bioinformatics/computational approaches and exercises to understand the structure and function of enzymes, proteins, and drug interactions.

Students will also learn the underpinning knowledge behind some of the methodologies and the intricacies of experimental design while supplementing their wider theoretical learning by applying techniques to tackle problems across the Biosciences disciplines. Students will learn how to analyze collected data and communicate the findings effectively, with the opportunity to apply their newly acquired skills to research projects tailored towards their programme and fields of interest.

The module comprises laboratory-based practical sessions alongside introductory plenary lectures and workshops, using active-learning delivery methods to ensure students can understand, synthesize, evaluate and communicate their research findings.

Learning and teaching are created and delivered by research-active scientists, ensuring that teaching is informed by the latest research and advances and is designed to be accessible, inclusive, and representative.

Students are assessed through an online exam (involving problem-solving activities) and a group poster to communicate the research outputs through scientific writing and graphical presentations.

ACADEMIC AND PROFESSIONAL SKILLS TUTORIALS (BIOS205)

Credits: 15 / Semester: whole session

This module will continue to develop students' transferable skills and will build on the year 1 skills module. It will focus on improving the students' written, communication, and employability skills. As this module is taken by students on all programmes, to allow students to explore their interests different essay titles, journal papers and discussion topics relevant to students programme area of interest will be offered. Students will complete four assessments which include an essay, a written critique of lay science communication, an individual report and group digital pitch, and a portfolio. The module is based on fortnightly small-group tutorials with an Academic Advisor. Each tutorial will have a topic that relates to a small task which students need to complete either before or after the tutorial. The topics will be introduced within plenary lectures. In addition to the plenary lectures relating to skills development and employability, students will also receive lectures and seminars relating to programme specific content. These lectures will form the basis for discussions in programme specific tutorials

CELLULAR BASIS OF HEALTH AND DISEASE (BIOS209)

Credits: 15 / Semester: semester 1

Cell signalling underlies the ability of cells to sense their environment and respond. In multicellular organisms, individual cells receive and integrate vast amounts of information that they use to modify their behaviour to ensure the development and survival of the organism as a whole. Disruption in these lines of communication underlies almost all disease.

Despite the apparent complexity, diverse signalling processes are carried out by very similar sets of molecular components that interact in common patterns. This module will be taught via lectures which focus on the common molecular themes and concepts that underlie normal cell signalling. This will be interspersed with disease case studies that show how disruption of these processes affect cells, tissues, and the whole organism.

Assessment will include open-book on-line assessments which will focus on the evaluation of case studies, data analysis/interpretation.

METABOLISM (BIOS212)

Credits: 15 / Semester: semester 2

The module explores the major animal and plant metabolic pathways that sustain life and, in some cases, those that account for disease. How plants create key nutrients and how animals use these to sustain life. How macromolecules (sugars, proteins, fats) and other useful metabolites are also created by animals and how plants can be used to harness new useful molecules. How metabolism is biologically integrated and linked to healthy lifestyles such as exercise and a balanced diet and how it is also linked to diseases such as cancer. Introduction to metabolomics and other techniques for studying metabolism such as bioinformatics. The module will be taught through a combination of lectures and workshops. and assessed by short answer exercises and an extended written piece.

CHEMISTRY FOR BIOSCIENCES (BIOS215)

Credits: 15 / Semester: semester 1

Chemistry for Biosciences is designed for students who have studied chemistry at Level 3, and builds on prior knowledge to develop an understanding of the chemical principles that underlie the structure and function of macromolecules such as proteins, nucleic acids and polysaccharides, as well as their interactions with small molecule metabolites and drugs. The module is required for students studying Biochemistry, Pharmacology and Biomedical Sciences, and an option for other students with the relevant chemistry background from, for example, Microbiology and Biological Sciences.

The module will begin with an exercise in which students will study a set of representations of macromolecules and small molecules and use their prior knowledge to build a catalogue of the chemical processes relevant to understanding the molecules' structure and function. These principles (including thermodynamics, kinetics, organic structure and mechanism, acids and bases and basic spectroscopy) will then be developed in later lecture sessions and workshops, which will involve the use of self-assessment questions to test understanding.

The module will be assessed in exam format using technical problems applying the methods addressed, along with interpretation of case studies of biological molecules and their interactions in short answer format.

OPTIONAL MODULES

CELLULAR AND SYSTEMS PHYSIOLOGY (BIOS214)

Credits: 15 / Semester: semester 2

Knowledge of the molecular physiology of cells and the physiology of organs on a systems level provides a fundamental basis for our understanding of the healthy body as well as disease-related mechanisms. Students will learn about a range of cellular functions, the roles of subcellular compartments, ranging from the nucleus to intracellular membrane compartments, plasma membrane and extracellular matrix, as well as dynamic molecular mechanisms like intracellular trafficking processes. Taking general cell biology to the organ systems level, this module will develop knowledge about the specialised functions of cells in specific human tissues and how the body regulates the various organ functions through communication pathways in a systemic way to achieve homeostasis. You will encounter various examples, including the digestive, renal, respiratory and neuroendocrine organs among others. Furthermore, you will be learning about a number of techniques and methods that are used to study the molecular biology of cells and the systems physiology of the body, including imaging techniques.

The module is taught through lectures and workshops, which are supported through directed reading/ multimedia.

There are two assessment in this module. The first assessment is a midterm assessment (40%) comprising a mixture of Multiple answer, multiple choice and extended matching item questions. The second assessment consists of two parts: Section 1 – assessing cellular and systems physiology concepts (30%) and Section 2 – Data interpretation and understanding (30%)

DRUG DISCOVERY AND DEVELOPMENT (BIOS216)

Credits: 15 / Semester: semester 2

Drug discovery & development is risky: only 1 in 7 drugs entering clinical development obtained approval between 2000 and 2015. This module is designed to give students a broad understanding of the fundamental principles of drug discovery & development. The curriculum includes all important aspects of drug discovery & development, including target identification, drug design, safety assessment, clinical trials, and health economy. A highlight of this module is it will introduce some relevant mathematical modelling – (e.g., bioinformatics, computational chemistry and pharmacodynamics) which will prepare the students with necessary quantitative skills. Teaching will be via formal lectures and workshop and the module will be assessed by a multiple-choice question (MCQ) examination (40%) and written exam assessment (60%).

MOLECULAR MICROBIOLOGY AND THERAPEUTICS (BIOS218)

Credits: 15 / Semester: semester 2

Understanding how microorganisms interact with their host, and the environment, is fundamental for the understanding and developing treatment for microbial disease. On this module students will explore the molecular mechanisms that lead to microbial infection for bacteria, viruses and fungi. This knowledge will then be applied to help students gain insight of various therapeutic strategies used to control microbial infections and the challenges associated with this. The module will be delivered via lectures and workshops, utilising active-learning delivery methods to enhance student engagement. Teaching material will be hosted in the University virtual learning environment (VLE) to aid development of digital fluency and promote assimilation and appraisal of the module content. The module will be assessed by online tests combining MCQs, MAQs and short answer questions.

ORGANIC CHEMISTRY FOR PHARMACOLOGY (CHEM038)

Credits: 15 / Semester: semester 2

A year 2 Chemistry module for Life Sciences. Whilst designed and aimed to offer Pharmacology students a grounding in directly relevant organic chemistry and spectroscopy, other Life Science students with an interest in Pharmacology may wish to take this as an optional module.

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YEAR THREE

Year three will provide an unparalleled opportunity for you to learn at the cutting edge of biochemistry research and be taught by world-leading academics in subjects allied to multi-'omics, molecular systems biology, protein structure and function and cell biology in health and disease. You will also develop advanced scientific skills and you will have the opportunity to take a physical or virtual placement. Central to this year is the research

project where you will plan and execute your own research, analyse and critically evaluate data and communicate your research findings in your chosen specialisation.

COMPULSORY MODULES

RESEARCH PROJECT (BIOS301)

Credits: 30 / Semester: whole session

The Research Project module is taken by all students studying a Biosciences BSc or MBiol degree. This 30-credit module runs throughout the Level 6 year and gives students the opportunity to experience authentic Biosciences research, applying the knowledge and skills that they have developed through the first two years, supported by the Research Methods module (BIOS303) in Semester 1 of Level 6 and under the guidance of an individual named supervisor. Students may work as a group to develop related or collaborative projects, although the assessment is always individual.

A large diversity of projects is available to students, including but not limited to lab-based (in research labs), field research, bioinformatics, mathematical modelling, computer analysis, meta-analysis, systematic review, education research, outreach, school-based projects. Students express a preference for keywords describing project content and style of project, and projects are allocated to optimise the fit between student preference and available projects.

Students meet their supervisor at the start of Semester 1 and develop a proposal for their project, including a literature review, aims and proposed methodology, with regular meetings with and guidance from their supervisor throughout the semester. Students are also instructed in relevant aspects of safety. The proposal is presented at the end of Semester 1 as an assessed negotiated communication (poster, live or video presentation), with discussion. This development of the proposal is supported by the concurrent Research Methods module, in which students will develop their skills in critical analysis of literature and appreciation of research ethics and will choose to study relevant research methodologies and associated analytical methods from a menu of options.

The substantive experimental work for the project is carried out in the first half of Semester 2, followed by the writing of the final project report, which is the primary assessed output of the project.

The student's approach and development of skills throughout the project will be recorded in a reflective log consisting of an ongoing project record book followed by a marked written reflective piece at the end of the project period.

Successful completion of the Research project module will equip students with the organisational, technical and communication skills to carry out individual project work in their future careers.

INTRODUCTION TO THE WORLD OF WORK (BIOS302)

Credits: 15 / Semester: semester 2

This 15-credit year three module acts as a steppingstone for students into the world of work. The module will utilise and develop knowledge, understanding, and skills that students have acquired during their first five semesters of study. Incorporating a placement, it will provide an opportunity for students to improve skills that are particularly sought after by employers, such as problem solving, teamwork, and communication, and will train them to better recognise, evidence, and articulate their skillset to future employers. The module will be assessed via a reflective portfolio, that they will develop throughout their engagement with the module activities.

For those students undertaking a placement external to the university, costs may be associated with travel to and from the student's placement site, and (temporary) accommodation if the student has to stay away from their normal term-time accommodation whilst attending the placement. Students will be made fully aware of these expenses, and the possibility of reimbursement will be considered on individual basis, where appropriate.

RESEARCH METHODS (BIOS303)

Credits: 15 / Semester: semester 1

This module aims to provide a set of critical reflection and data communication skills in a subject-specific context. These skills will support students in the execution and presentation of their research projects (BIOS301), in the critical analysis of literature including a grounding in research ethics, and in the development of a repertoire of skills in experimental design, analysis and reporting of results specifically relevant to their project work. The module is taught through lectures, seminars and tutorials, as well as a collection of online materials, and has a strong emphasis on independent learning.

In the first part of the module students will be introduced to the key principles of critical thinking and will apply their skills to perform critical analyses of the scientific literature, in workshops in small groups drawn from their subject area. For assessment, they will produce a peer review for a sample article in their subject area. These skills will be directly applicable to the production of a research proposal for BIOS301, which involves a review of the literature forming the background to their project topic, and which is submitted at the end of semester 1.

In the second part students, in collaboration with their project supervisor, will select three examples most appropriate to their projects from a catalogue of experimental and associated analytical (including statistical) methods. They will develop their understanding using online material and drop-in workshops. The assessment will require the production of publication-quality figures reporting sample data or equivalent acquired using the relevant methods, with appropriate figure legends and explanatory text. The skills gained here will be directly applicable to the students' project work and the production of their final report, submitted at the end of semester 2.

APPLIED BIOCHEMISTRY (BIOS306)

Credits: 15 / Semester: semester 2

This module provides students with the opportunity to showcase and extend their knowledge of biochemistry and allied disciplines. It is designed in the context of explaining a recent commercially relevant development and to develop a scientifically and commercially credible pipeline to deliver a product of relevance to medicines, materials, biotechnology or education. The module is taught through workshops, tutorials, a small number of lectures and guided self-learning.
The module has three assessments. The first assessment will be a Science-Communication piece with an infographic explaining in lay terms a recent impactful development in the field, as one might find in a broadsheet, New Scientist, Ars Technica, or a company showcase. The second assessment will be a group poster describing the technical aspects of the steps or pipeline required to deliver the product defined in the chosen scenario. The third assessment will be a 5 minute individual pitch where students' reflect on the poster and their contribution.

MOLECULAR SYSTEMS BIOLOGY (BIOS309)

Credits: 15 / Semester: semester 1

This module examines how biology can be explored at scales from individual signalling pathways to whole organisms using methods and approaches from modern molecular systems biology. 'Omics approaches including proteomics, genomics, transcriptomics and metabolomics are taught through the lens of these different experimental questions. Throughout, students will evaluate the field of molecular systems biology, investigate landmark papers using these different methods across different scales, and appreciate and the extent to which different investigative approaches and concepts are complementary to each other.

STRUCTURAL BIOLOGY (BIOS311)

Credits: 15 / Semester: semester 1

This module examines how the structure and dynamics of proteins explains their biological function. Includes concepts in protein folding, protein interactions/specificity and protein regulation. Protein production and rapid biophysical characterisation approaches will be studied that include techniques for studying protein interactions and the insights they give to biology. Biological systems that require large conformational changes and allostery including large complexes/machines will be introduced. Biological insights gained from structural techniques such as x-ray crystallography, cryoEM and protein bioinformatics as well as techniques that study the dynamics of proteins such as NMR and molecular dynamics will be taught. Throughout, students will evaluate the field of integrative structural biology and the extent different approaches and concepts are complementary to each other and help explain the structural basis of biological processes at the molecular level. The module will be taught through a combination of lectures and workshops and assessed by two assessments that involve data interpretation and application to the key concepts/techniques covered in the course.

INFORMATION PROCESSING BY CELL SIGNALLING NETWORKS IN HEALTH AND DISEASE (BIOS331)

Credits: 15 / Semester: semester 1

Cell signalling networks allow individual cells to communicate with each other to coordinate their behaviour, maintain homeostasis, and respond to changes in their environment. This transfer of information from one cell to another, through the use of signalling molecules such as hormones, neurotransmitters, and growth factors is fundamental to modern ideas in cellular dynamics, biophysics and cell signalling in both health and disease.

This module will provide students with the ability to access, collate and discuss the modern literature in cell signalling from a systems physiology perspective by active research staff using relevant examples from their own research. Successful students will develop the skills required for interpretation of experimental cell signalling data. The module will be taught through a series of lectures and tutorials and will be assessed by both open book assessments. Cycle one will be an online assessment, with a focus on data analysis and interpretation; cycle 2 will be continuous assessment, under examination conditions, in the form of an extended piece of writing.

Any optional modules listed above are illustrative only and may vary from year to year. Modules may be subject to minimum student numbers being achieved and staff availability. This means that the availability of specific optional modules cannot be guaranteed.

HOW YOU'LL LEARN

You'll learn through a balanced mix of lectures, workshops, seminars and tutorials as well as hands-on, practical laboratory sessions, working individually and in small groups.

HOW YOU'RE ASSESSED

Assessed work includes essays, presentations, group work, digital communications, qualitative and experimental reports and formal examinations with results from years two and three contributing to your final degree classification.

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

As a Biosciences graduate from the University of Liverpool, you will have an excellent set of career options ahead of you.

Typical types of roles/routes our graduates have gone on include:

- Postgraduate study: (MBiolSci, MSc, MRes, MPhil or PhD)
- Public sector – research institutes, government departments, the National Health Service, forensic science and the Environment Agency.
- Commercial sectors – pharmaceutical, food, biotechnology, water and agriculture industries.
- Journalists and information/liaison officers – by developments in molecular biology and biotechnology.
- Teaching profession by taking a postgraduate qualification (PGCE).
- Routes to postgraduate Medicine, Dentistry or Veterinary Science.

Recent employers and sectors:

- Pharmaceutical sector: Eli-Lilly, AstraZeneca, Glaxo SmithKline, NHS, Red X Pharma;
- Tourism/Conservation sector: Blue Planet Aquarium, Chester Zoo, RSPCA;
- Government/Legal sector: Crown Prosecution Service, The Environment Agency, Public Health England, Home Affairs, Ministry of Defence, Security and International Development;
- Media/Entertainment Sector: BBC;
- Corporate and Utilities sector: United Utilities, Vodafone, Unilever.

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

Graduate Outcomes, 2018-19.

Fees and funding

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

TUITION FEES

UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)	
Full-time place, per year	£9,535
Year abroad fee	£1,385

International fees	
Full-time place, per year	£29,100
Year abroad fee	£14,550

The UK full-time tuition fee, international course fee and fee for the year abroad for international students shown are correct for 2025/26 entry. We are currently awaiting confirmation of whether the year abroad fee for UK students will change, so the fee shown is for 2024/25. Please note that the year abroad fee also applies to the year in China.

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 fees and funding.

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 that could help pay your tuition and living expenses.

We've set the country or region your qualifications are from as United Kingdom. Change it here

- ## UNDERGRADUATE GLOBAL ADVANCEMENT SCHOLARSHIP

  - International students

  If you're a high-achieving international student starting an undergraduate degree with us from September 2024, you could be eligible to receive a fee discount of up to £5,000. You'll need to achieve grades equivalent to AAA in A levels. Most of our undergraduate degrees are eligible, with the exception of clinical programmes in Medicine and Dental Surgery.

- ## THE LIVERPOOL BURSARY

  - Home students

  If you're a UK student joining an undergraduate degree and have a household income below £35,000, you could be eligible for a Liverpool Bursary worth up to £2,000 for each year of undergraduate study.

- ## ASYLUM SEEKERS SCHOLARSHIP

  - Home students

  Apply for an Asylum Seekers Scholarship and you could have your tuition fees paid in full and receive help with study costs. You'll need to have applied for asylum in the UK, or be the dependant of an asylum seeker, and be joining an eligible undergraduate degree.

- ## CARE LEAVERS' OPPORTUNITY BURSARY

  - Home students

  If you've spent 13 or more weeks in Local Authority care since age 14, you could be eligible for a bursary of £3,000 per year of study. You'll need to be a UK student joining an eligible undergraduate degree and be aged 28 or above on 1 September in the year you start.

- ## COWRIE FOUNDATION SCHOLARSHIP

  - Home students

  Are you a UK student with a Black African or Caribbean heritage and a household income of £25,000 or less? You could be eligible to apply for a Cowrie Foundation Scholarship worth up to £8,000 for each year of undergraduate study.

- ## ESTRANGED STUDENTS BURSARY

  - Home students

  If you're a UK student identified as estranged by Student Finance England (or the equivalent UK funding body), you could be eligible for a bursary of £1,000 for each year of undergraduate study.

- ## GENESYS LIFE SCIENCES SCHOLARSHIP

  - Home students

  Joining a School of Biosciences degree and have a household income of less than £25,000? If you're a UK student, you could apply to receive £4,500 per year for three years of your undergraduate course.

- ## GRADUATE ASSOCIATION HONG KONG & TUNG UNDERGRADUATE SCHOLARSHIPS

  - International students
  - Hong Kong

  If you're an undergraduate student from Hong Kong who can demonstrate academic excellence, you may be eligible to apply for a scholarship worth £10,000 in partnership with the Tung Foundation.

- ## KAPLAN DIGITAL PATHWAYS EXCELLENCE SCHOLARSHIP

  - International students

  Completed a Kaplan Digital Pathways Foundation Certificate? We're offering a £5,000 fee discount off the first year of undergraduate study for a maximum of two high achieving students joining one of our non-clinical degrees from an online Kaplan Foundation Certificate.

- ## NOLAN SCHOLARSHIPS

  - Home students

  Do you live in the Liverpool City Region with a household income of £25,000 or less? Did neither of your parents attend University? You could be eligible to apply for a Nolan Scholarship worth £5,000 per year for three years of undergraduate study.

- ## RIGBY ENTERPRISE AWARD

  - Home students

  Are you a UK student with a household income of £25,000 or less? If you've participated in an eligible outreach programme, you could be eligible to apply for a Rigby Enterprise Award worth £5,000 per year for three years of your undergraduate degree.

- ## ROLABOTIC SCHOLARSHIP

  - Home students

  Are you a UK student with a household income of £25,000 or less? Did neither of your parents attend University? You could be eligible to apply for a ROLABOTIC Scholarship worth £4,500 for each year of your undergraduate degree.

- ## SPORT LIVERPOOL PERFORMANCE PROGRAMME

  - Home and international students

Apply to receive tailored training support to enhance your sporting performance. Our athlete support package includes a range of benefits, from bespoke strength and conditioning training to physiotherapy sessions and one-to-one nutritional advice.

- ## TECHNETIX BROADHURST ENGINEERING SCHOLARSHIP

  - Home students

Joining a degree in the School of Electrical Engineering, Electronics and Computer Science? If you're a UK student with household income below £25,000, you could be eligible to apply for £5,000 a year for three years of study. Two awards will be available per academic year.

- ## UNIVERSITY OF LIVERPOOL INTERNATIONAL COLLEGE EXCELLENCE SCHOLARSHIP

  - International students

Completed a Foundation Certificate at University of Liverpool International College (UoLIC)? We're offering a £5,000 fee discount off the first year of undergraduate study to some of the highest achieving students joining one of our non-clinical degrees from UoLIC.

- ## UNIVERSITY OF LIVERPOOL INTERNATIONAL COLLEGE FIRST CLASS SCHOLARSHIP

  - International students

We're offering a £1,000 fee discount for years 2 and 3 of undergraduate study to eligible students progressing from University of Liverpool International College. You'll need to be studying a non-clinical subject and get an average of 70% or above in year 1 of your degree.

- ## UNIVERSITY OF LIVERPOOL INTERNATIONAL COLLEGE IMPACT PROGRESSION SCHOLARSHIPS

  - International students

If you're a University of Liverpool International College student awarded a Kaplan Impact Scholarship, we'll also consider you for an Impact Progression Scholarship. If selected, you'll receive a £3,000 fee discount off the first year of your undergraduate degree.

- ## YOUNG ADULT CARER'S (YAC) BURSARY

  - Home students

If you're a young adult and a registered carer in the UK, you might be eligible for a £1,000 bursary for each year of study. You'll need to be aged 18-25 on 1 September in the year you start your undergraduate degree.

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	ABB 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. You may automatically qualify for reduced entry requirements through our contextual offers scheme. 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. Available foundation years: • Biological Sciences (with a Foundation Year) leading to BSc (Hons)
GCSE	4/C in English and 4/C in Mathematics
Subject requirements	Biology and Chemistry at A level. For applicants from England: Where a science has been taken at A level (Chemistry, Biology or Physics), a pass in the Science practical of each subject will be required.
BTEC Level 3 National Extended Diploma	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). For previous BTEC (QCF) qualification: D*DD in Applied Science with a selection of preferred units in Biology and Chemistry, with at least 120 Level 3 credits at Distinction.

Your qualification	**Requirements** About our typical entry requirements
	Please note alternative BTEC subjects are not acceptable for this programme.
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 Higher Level Chemistry.
Irish Leaving Certificate	H1, H2, H2, H2, H3, H3 including grade H2 in both of Higher Level Biology and Higher Level Chemistry.
Scottish Higher/Advanced Higher	Not accepted without Advanced Highers at grades ABB
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	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.

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.

THE ORIGINAL REDBRICK