Contents

Introducing Life Sciences 01
Why choose Life Sciences at Liverpool? 02
Invest in your future 06
Degrees 08
Module details 26
Introducing Life Sciences

Life Sciences at Liverpool brings together biological and medical sciences. We investigate development and normal function in humans, animals, plants, microbes and single cells, as well as disease processes and treatments. Life scientists work at the heart of critical topics for the planet, such as global warming, new energy sources, food security and pandemics.

We aim to make you an expert in one particular field while having the ability to cross discipline boundaries, a combination of strengths that is highly attractive to prospective employers.

You will be able to tackle the issues that dominate today’s society and are of international relevance, such as global warming, new energy sources, and the treatment of plant, animal and human diseases.

New technological developments in genome sequencing and bioinformatics are providing fresh insights across life sciences, and the demand for graduates in these areas of science is therefore extremely high.

It's hard to know exactly what you want to do when selecting a course, so being able to choose the modules that interest you and transfer from a three year BSc to a four year integrated masters allows you to tailor your degree around your passion.

Sam Cooper
Biological Sciences BSc (Hons)
Why choose Life Sciences at Liverpool?

Choose Life Sciences at Liverpool and you will have more than 100 years of teaching and research experience supporting you. Over that time, we have developed an academic community that draws on disciplines from across the life sciences, offering you a breadth and depth of flexible study choice we believe is unrivalled in the UK. Here, you can really shape your studies according to your interests, and be confident that the teaching you receive is informed by the very latest, ground-breaking research from across our renowned Faculty of Health and Life Sciences.
Shape your study with real flexibility and choice
You will study in one of the largest Schools of Life Science in the UK, meaning you can shape your studies by choosing modules from across the entire spectrum of the life sciences. You’ll also enjoy links to our Schools of Medicine, Dentistry and Veterinary Science, and the Liverpool School of Tropical Medicine.

Enjoy excellent career prospects
You will benefit from our excellent international reputation for research in growth areas such as the biotechnology, post-genomic, environmental and pharmaceutical industries.

Strengthen your employability through overseas study
Boost your future prospects by choosing to study or take part in field courses abroad. Our networks stretch as far afield as Uganda, Thailand and China.

Work in leading-edge facilities
More than £30 million has recently been invested in our facilities, such as our Biology Teaching Centre, the state-of-the-art Biosciences Building, the Biomedical Sciences Building and the Human Anatomy Resource Centre. This ensures your studies are fully supported by the very best in teaching and research equipment.

Study abroad
There are many opportunities for Life Sciences students to study or work abroad. These include exchange schemes with partner universities across the world, where students may study abroad for one semester or one year. For further information on student exchange, visit liverpool.ac.uk/goabroad

Year in China
The Year in China is the University of Liverpool’s exciting flagship programme offering undergraduate students from a huge range of departments, including Life Sciences, the opportunity to spend one year at our sister university Xi’an Jiaotong-Liverpool University (XJTLU), following XJTLU’s BA China Studies degree classes. See our page at liverpool.ac.uk/yearinchina for more information.
Languages at Liverpool
Studying a programme within Life Sciences allows you to study a language as an extracurricular course, on top of your degree. See liverpool.ac.uk/languages for more information.

How you 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 are 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.

You will also prepare posters, complete tests, analyse data, give short talks, research the scientific literature and write essays and reports. The style of examination progresses from multiple choice questions, and short answers towards more extended formats such as essays and reports in the later years of each degree programme, as your understanding deepens.

“…you are given lots of opportunities to shape the direction you want to take by selecting specific modules. When I was researching where to study this aspect drew me to Liverpool as I liked the idea of this freedom and that I could select the modules I liked most.”

Lydia Hawker
Pharmacology BSc (Hons)
Invest in your future

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

There is also an increasing demand for life scientists to contribute to the public understanding of science as journalists and information/liaison officers, in view of the ethical and environmental issues that arise, for example, by developments in molecular biology and biotechnology.

A number of routes are available for graduates to enter the teaching profession one of which is taking a postgraduate qualification (PGCE). There are significant financial inducements provided to meet the current demand for science teachers. In addition to all of the opportunities for graduates in general, including careers outside of biology (such as management, accountancy and human resources), where the skills you have obtained in our degree programmes will be of considerable benefit. Our degree programmes are also popular routes to postgraduate Medicine, Dentistry or Veterinary Science.

Recent employers of our graduates
- AstraZeneca
- BBC
- Blue Planet Aquarium
- Chester Zoo
- Crown Prosecution Service
- Eli-Lilly
- Glaxo SmithKline
- Home Affairs, Security and International Development
- United Utilities
- RSPCA
- NHS
- Ministry of Defence
- Unilever
- Vodafone
- Public Health England
- Red X Pharma
- Royal Society of Biology
- The Environment Agency.
Work experience opportunities

Students on our four-year MBiolSci programme have the opportunity to take elective internships abroad at our partner institutions. For example, while at universities in Thailand, students have worked on topics such as coral reef and mangrove ecology, genetics of shrimp development and new drugs for tuberculosis.

Students in their final year of the MBiolSci programme also have the opportunity to take a six-week life sciences related internship as an optional fourth year module which runs during the course of the summer prior to Year Four. Alternatively, students can spend the entire final Year Four in industry or other enterprises. Internships and placements are subject to availability.

You will have the exciting option to undertake a foreign field course in western Uganda which is available when studying a number of our undergraduate degree programmes. The 12-day trip involves study at both the Kibale National Park (10 days) and Queen Elizabeth National Park (two days).

Topics covered whilst in Uganda include tropical forest and savannah ecology, biodiversity patterns, primate behaviour and ecology, subsistence versus commercial agricultural practices, and ecotourism.

In addition there is the option of the LIFE399 Life sciences work-based placement module. LIFE399 is an optional third year module which runs during the course of the summer prior to Year Three. Students will undertake a placement to assist their personal development and employability, and will complete a skills audit, reflective log and report, based on their experience. The module is worth 15 academic credits.

A passion for learning: postgraduate studies

Many of our students decide to stay at Liverpool as postgraduate students. For further information on postgraduate study, the prospectus is now online in two formats for either research degrees (MPhil/PhD) at liverpool.ac.uk/study/postgraduate-research or for taught courses at liverpool.ac.uk/study/postgraduate-taught
# Degrees

## Programmes at-a-glance

<table>
<thead>
<tr>
<th>Programme</th>
<th>UCAS Code</th>
<th>Programme Length</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy and Human Biology BSc (Hons)</td>
<td>B110</td>
<td>3 years</td>
<td>08</td>
</tr>
<tr>
<td>Biochemistry BSc (Hons)</td>
<td>C700</td>
<td>3 years</td>
<td>09</td>
</tr>
<tr>
<td>Biological and Medical Sciences BSc (Hons)</td>
<td>C130</td>
<td>3 years</td>
<td>11</td>
</tr>
<tr>
<td>Biological Sciences BSc (Hons) (also leading to a choice of Honours School)</td>
<td>C100</td>
<td>3 years</td>
<td>12</td>
</tr>
<tr>
<td>Bioveterinary Science BSc (Hons)</td>
<td>D900</td>
<td>3 years</td>
<td>14</td>
</tr>
<tr>
<td>Genetics BSc (Hons)</td>
<td>C400</td>
<td>3 years</td>
<td>15</td>
</tr>
<tr>
<td>Human Physiology BSc (Hons)</td>
<td>B120</td>
<td>3 years</td>
<td>16</td>
</tr>
<tr>
<td>Microbiology BSc (Hons)</td>
<td>C500</td>
<td>3 years</td>
<td>18</td>
</tr>
<tr>
<td>Pharmacology BSc (Hons)</td>
<td>B210</td>
<td>3 years</td>
<td>19</td>
</tr>
<tr>
<td>Tropical Disease Biology BSc (Hons)</td>
<td>C111</td>
<td>3 years</td>
<td>20</td>
</tr>
<tr>
<td>Zoology BSc (Hons)</td>
<td>C300</td>
<td>3 years</td>
<td>21</td>
</tr>
<tr>
<td>Biological Sciences leading to BSc (Hons) (4-year route with Foundation Year at Carmel College)</td>
<td>C108</td>
<td>4 years</td>
<td>22</td>
</tr>
<tr>
<td>MBiolSci (Hons) integrated master's</td>
<td>C900</td>
<td>4 years</td>
<td>23</td>
</tr>
<tr>
<td><strong>Degrees offered with other departments</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine Biology BSc (Hons)</td>
<td>C160</td>
<td>3 years</td>
<td>24</td>
</tr>
<tr>
<td>Marine Biology MMarBiol (Hons)</td>
<td>C161</td>
<td>4 years</td>
<td>24</td>
</tr>
<tr>
<td>Marine Biology with Oceanography BSc (Hons)</td>
<td>C1F7</td>
<td>3 years</td>
<td>25</td>
</tr>
</tbody>
</table>

See [liverpool.ac.uk/study/undergraduate/courses](https://liverpool.ac.uk/study/undergraduate/courses) for current entry requirements.

### Anatomy and Human Biology BSc (Hons)

**UCAS code:** B110  
**Programme length:** 3 years

This is a practical, hands-on degree in anatomy that allows you to combine a programme that includes cadaveric dissection with modules from biomedical and biological sciences.

This degree will suit you if you want a thorough understanding of the structure and function of the human body. Our students are well prepared to compete for graduate entry into Medicine, Veterinary Medicine, Dental Sciences, Diagnostic Radiography and Physiotherapy, for higher degrees, and for careers in biological and medical science, archaeology, forensic science, palaeontology, sports science and teaching.

### Programme in detail

Each year includes dissection of the human body, working in groups of about seven (subject to the availability of prepared cadavers) guided by a series of related lectures and practical sessions in the Human Anatomy Resource Centre.

Lectures are given by top scientists in fields such as human evolution, vertebrate morphology, stem cell and developmental biology, musculoskeletal biology and cardiovascular biology. This is supported with topics that include physiology, pharmacology, neuroscience and practical skills.

Year Three includes the opportunity for a practical research project in one of the internationally renowned research groups working within the research institutes that support the teaching on the degree programme.
Key modules
Year One
Core modules
- Circulatory and respiratory anatomy (LIFE116)
- Core concepts of anatomy (LIFE111)
- Developmental biology: embryology and mechanisms of development (LIFE114)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Introduction to physiology and pharmacology (LIFE106)
- Molecules and cells (LIFE101).

Year Two
Core modules
- Anatomy of the abdomen and pelvis (LIFE235)
- Anatomy of the head and neck (LIFE220)
- Essential skills for life sciences II (LIFE223)
- Functional anatomy of the human locomotor system (LIFE219)
- Functional neuroanatomy (LIFE218).

Selected optional modules
- Cell signalling in health and disease (LIFE202)
- E-biology: informatics for life sciences (LIFE225)
- Endocrine and neuro-physiology (LIFE204)
- Evolutionary biology (LIFE213)
- Experimental physiology (LIFE232)
- Molecular and medical genetics (LIFE208)
- Practical human physiology (LIFE229)
- Practical pharmacology (LIFE234)
- Principles of pharmacology (LIFE207)
- Techniques in cell biology (LIFE227)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205).

Year Three
Core modules
- Advanced human topographical anatomy (LIFE349)
- Advanced skills and contemporary themes in anatomical science (LIFE347)
- Research project (LIFE363).

Selected optional modules
- Animal nervous and musculoskeletal disorders (LIFE344)
- Becoming human: genomics, development, and evolutionary anthropology (LIFE364)
- Clinical, anatomical and cellular basis of neurological dysfunction (LIFE334)
- Current skills and topics in evolutionary biology (LIFE324)
- Human and clinical genetics (LIFE321)
- Integrative comparative animal physiology (LIFE339)
- Molecular, clinical, and translational cancer (LIFE373)
- Neuromuscular physiology and disease (LIFE311)
- Specialised body systems: development, disease, and regeneration (LIFE332)
- The body in motion: musculoskeletal functioning in health, performance and disease (LIFE335)
- The cardiovascular system in health and disease (LIFE330).

Year Four
Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.

Biochemistry BSc (Hons)
UCAS code: C700
Programme length: 3 years

Biochemistry is the study of molecular structures and interactions in living organisms. Biochemists seek to understand living organisms in terms of chemical reactions.

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.

Continued over...
Biochemists are in great demand by employers and this degree will provide you with the knowledge and skills that employers want in medical and agricultural research, the pharmaceutical and other biotechnology industries, as well as in education.

**Programme in detail**

**What is the biochemical basis of disease?**
How does DNA control our development, our metabolism and our personal characteristics? How do enzymes work and how do hormones control biological function? These are just some of the fascinating questions addressed in this programme.

In Year Three you will have the opportunity to complete a project in one of our excellent research laboratories, in Life Sciences, in our Medical, Veterinary and Dental Schools or even in a local hospital. You will become proficient in IT and will use the latest software to retrieve and analyse data. Communication skills, scientific writing and oral presentation, together with a range of other employability skills are also taught, enabling you to present your findings effectively to a range of audiences.

**Key modules**

**Year One**

**Core modules**
- Applied genetic and molecular technologies (LIFE108)
- Biochemical methods (LIFE122)
- Biochemistry and biomedical sciences (LIFE102)
- Essential skills for life sciences I (LIFE109)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Molecules and cells (LIFE101).

**Selected optional modules**
- Animal biodiversity (LIFE112)
- Developmental biology: embryology and mechanisms of development (LIFE114)
- Introduction to animal husbandry (LIFE118)
- Introduction to physiology and pharmacology (LIFE106)
- Microbiology (LIFE110).

**Year Two**

**Core modules**
- Advanced biochemical techniques (LIFE224)
- Biological chemistry (LIFE245)
- Cell signalling in health and disease (LIFE202)
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- Essential skills for life sciences II (LIFE223)
- From genes to proteins (LIFE201)
- Molecular science (LIFE237)
- Structure and dynamics of macromolecules (LIFE203)
- Techniques in cell biology (LIFE227).

**Selected optional modules**
- Biotechnology (LIFE210)
- Principles of pharmacology (LIFE207)
- The immune system in health and disease (LIFE221)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205).

**Year Three**

**Core modules**
- Advanced skills in biochemistry (LIFE301)
- Biochemical messengers and signal transduction (LIFE304)
- Gene expression and development (LIFE323)
- Genes and cancer (LIFE302)
- Molecular medicine (LIFE306)
- Protein structure, function and organisation (LIFE303).

**Year Four**

Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.
Biological and Medical Sciences BSc (Hons)
UCAS code: C130
Programme length: 3 years

This programme provides a broad-based education in life sciences related to medicine and medical research, and offers great flexibility of module choice so that you can follow your own particular interests.

This programme is particularly suitable if you are intending to apply for graduate entry into medical or dental schools, but it also prepares you for a wide range of other careers including scientific research and the pharmaceutical industry.

Programme in detail
In this programme you will choose to study from a wide range of modules from medically-relevant disciplines including Physiology, Pharmacology, Biochemistry, Genetics, Microbiology and Tropical Disease Biology. What you study in Year One will determine which options you can take in Years Two and Three. A typical student chooses modules in the first two years that concentrate on physiology, pharmacology and cellular biochemistry. In the third year specific disease areas are covered in much greater detail.

Key modules
Year One
Core modules
- Applied genetic and molecular technologies (LIFE108)
- Biochemical methods (LIFE122)
- Biochemistry and biomedical sciences (LIFE102)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Molecules and cells (LIFE101).

Selected optional modules
- Introduction to physiology and pharmacology (LIFE106)
- Microbiology (LIFE110).

Year Two
Core modules
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- Essential skills for life sciences II (LIFE223)
- Techniques in cell biology (LIFE227).

Selected optional modules
- Advanced biochemical techniques (LIFE224)
- Advanced genetics techniques (LIFE226)
- Advanced microbiological techniques (LIFE228)
- Biological chemistry (LIFE245)
- Biotechnology (LIFE210)
- Cell signalling in health and disease (LIFE202)
- Drug action (LIFE206)
- Endocrine and neuro-physiology (LIFE204)
- From genes to proteins (LIFE201)
- Molecular and medical genetics (LIFE208)
- Molecular science (LIFE237)
- Practical human physiology (LIFE229)
- Practical pharmacology (LIFE234)
- Practical skills in tropical medicine (LIFE236)
- Principles of pharmacology (LIFE207)
- The immune system in health and disease (LIFE221)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205)
- Virology (LIFE209).

Year Three
Core modules
- Advanced skills in biological and medical sciences (LIFE365)
- Research project (LIFE363).

Selected optional modules
- Bacterial disease mechanisms (LIFE318)
- Biochemical messengers and signal transduction (LIFE304)
- Cancer pharmacology (LIFE314)
- Cardiovascular and respiratory pharmacology (LIFE313)
- Cell signalling in health and disease (LIFE305)
- Gene expression and development (LIFE323)
- Genes and cancer (LIFE302)
- Human and clinical genetics (LIFE321)
- Molecular, clinical and translational cancer (LIFE373)

Continued over...
Molecular medicine (LIFE306)
Molecular toxicology (LIFE316)
Neuromuscular physiology and disease (LIFE311)
Parasitology (LIFE361)
Topics in global health (LIFE340)
Understanding disease: an integrated approach (LIFE375)
Viral disease mechanisms (LIFE320).

Year Four
Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.

Biological Sciences BSc (Hons) (also leading to a choice of Honours School)
UCAS code: C100
Programme length: 3 years

This programme allows you to pursue your own areas of specific interest and to have an appreciation of the full range of the subject.

Should you decide sometime in the first two years that you wish to specialise, you can transfer to a number of programmes in the School of Life Sciences, subject to meeting the appropriate pre-requisites for your chosen programme.

Programme in detail
A progressive series of field, laboratory and lecture modules cover most aspects of the Biological Sciences, with students able to select topics to match their interests. Modules are selected from more than 50 options offered within the School of Life Sciences.

In Year Three, field courses in Zoology and Ecology are available. You will also undertake a research project that you will choose from one of the various parts of the School to complement the lecture programme chosen for your Honours year. Each project gives an invaluable opportunity to see what real scientific research is like and to work alongside staff who are international authorities in their fields.

Key modules
Year One
Core modules
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Molecules and cells (LIFE101).

Selected optional modules
- Animal biodiversity (LIFE112)
- Applied genetic and molecular technologies (LIFE108)
- Biochemical methods (LIFE122)
- Biochemistry and biomedical sciences (LIFE102)
- Biology and ecology field skills (LIFE124)
- Developmental biology: embryology and mechanisms of development (LIFE114)
- Ecology and the global environment (LIFE120)
- Introduction to animal husbandry (LIFE118)
- Introduction to animal infectious diseases, epidemiology and public health (LIFE126)
- Introduction to physiology and pharmacology (LIFE106)
- Marine biology: life in the seas and oceans (ENVS121)
- Marine ecosystems: diversity, processes and threats (ENVS122)
- Microbiology (LIFE110).
Year Two
Core modules
- Essential skills for life sciences II (LIFE223).

Selected optional modules
- Advanced animal husbandry (LIFE217)
- Advanced biochemical techniques (LIFE224)
- Advanced experimental design and analysis (LIFE238)
- Advanced genetics techniques (LIFE226)
- Advanced microbiological techniques (LIFE228)
- Advanced techniques in animal behaviour, health and welfare (LIFE239)
- Advanced techniques in zoology (LIFE230)
- Animal behaviour (LIFE211)
- Biodiversity practical skills (LIFE233)
- Biological chemistry (LIFE245)
- Biotechnology (LIFE210)
- Cell signalling in health and disease (LIFE202)
- Comparative animal physiology (LIFE212)
- Drug action (LIFE206)
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- Ecological practical skills (ENVS261)
- Endocrine and neuro-physiology (LIFE204)
- Evolutionary biology (LIFE213)
- Experimental physiology (LIFE232)
- From genes to proteins (LIFE201)
- Functional neuroanatomy (LIFE218)
- Laboratory identification of parasites and diagnosis of parasitism (LIFE244)
- Marine ecology field studies (ENVS278)
- Marine ecophysiology, ecology and exploitation (ENVS251)
- Molecular and medical genetics (LIFE208)
- Molecular science (LIFE237)
- Pathological basis of animal diseases (LIFE240)
- Population and community ecology (LIFE214)
- Practical human physiology (LIFE229)
- Practical pharmacology (LIFE234)
- Practical skills in tropical medicine (LIFE236)
- Principles of pharmacology (LIFE207)
- Structure and dynamics of macromolecules (LIFE203)
- Techniques in cell biology (LIFE227)
- The immune system in health and disease (LIFE221)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205)
- Tropical ecology field course (LIFE222)
- Veterinary form and function (LIFE215)
- Veterinary parasitology and public health (LIFE216)
- Virology (LIFE209).

Year Three
Core modules
- Advanced skills in biological sciences (LIFE355)
- Research project (LIFE363).

Selected optional modules
- Advanced biotechnology (LIFE327)
- Advanced topics in ecology (LIFE337)
- Animal nervous and musculoskeletal disorders (LIFE344)
- Bacterial disease mechanisms (LIFE318)
- Becoming human, genomics, development and evolutionary anthropology (LIFE364)
- Biochemical messengers and signal transduction (LIFE304)
- Cancer pharmacology (LIFE314)
- Cardiovascular and respiratory pharmacology (LIFE313)
- Cell signalling in health and disease (LIFE305)
- Chemotherapy and cellular pharmacology (LIFE312)
- Chemotherapy of parasitic disease (LIFE338)
- Clinical, anatomical and cellular basis of neurological dysfunction (LIFE334)
- Conservation biology (LIFE326)
- Current skills and topics in evolutionary biology (LIFE324)
- Current topics in animal behaviour (LIFE322)
- Data handling for physiologists (LIFE310)
- Drug metabolism and drug response (LIFE315)
- Gene expression and development (LIFE323)
- Genes and cancer (LIFE302)
- Genome biology and technology (LIFE342)
- Human and clinical genetics (LIFE321)
- Integrative comparative animal physiology (LIFE339)
- Life sciences work-based placement (LIFE399)
Marine ecology: theory and applications (ENVS383)
Microbial diversity and versatility (LIFE329)
Molecular and neuropharmacology (LIFE317)
Molecular medicine (LIFE306)
Molecular toxicology (LIFE316)
Neuromuscular physiology and disease (LIFE311)
Parasitology (LIFE361)
Principles of molecular physiology research (LIFE309)
Protein structure, function and organisation (LIFE303)
Specialised body systems: development, disease and regeneration (LIFE332)
Surviving the marine environment: adaptation, behaviour and conservation (ENVS310)
The body in motion: musculoskeletal functioning in health, performance and disease (LIFE335)
The dynamic cell: membrane traffic in health and disease (LIFE307)
Topics in global health (LIFE340)
Vector biology: theory, research and implementation (LIFE359)
Veterinary epidemiology and public health (LIFE328)
Viral disease mechanisms (LIFE320)
Zoology field course (LIFE333).

Programme in detail
The programme contains bespoke modules in Bioveterinary Science, in topics such as animal husbandry and welfare, veterinary form and function, veterinary diseases, epidemiology, pathology and public health. Students also choose modules available in the School of Life Sciences, which include animal biodiversity, animal behaviour, zoology practical skills, comparative animal physiology and conservation biology.

There are several options available in Years Two and Three allowing the student to tailor their degree to fit with their strengths, interests and career aspirations. In the final year, all students carry out an extended research project of their choice with an active research group. Various modes of teaching are used throughout the programme including lectures, practical classes, problem-based learning and guided study supported by our Virtual Learning Environment.

Key modules
Year One
Core modules
- Animal biodiversity (LIFE112)
- Biochemical methods (LIFE122)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Introduction to animal husbandry (LIFE118)
- Introduction to animal infectious diseases, epidemiology and public health (LIFE126)
- Molecules and cells (LIFE101).

Year Two
Core modules
- Advanced animal husbandry (LIFE217)
- Advanced techniques in zoology (LIFE230)
- Essential skills for life sciences II (LIFE223)
- Techniques in cell biology (LIFE227)
- Veterinary form and function (LIFE215)
- Veterinary parasitology and public health (LIFE216).

Bioveterinary Science BSc (Hons)
UCAS code: D900
Programme length: 3 years

This three-year programme will provide you with a wide knowledge of biological and veterinary animal sciences, practical techniques and transferable skills for careers allied to veterinary science, scientific research, conservation, animal welfare and the biotechnology and pharmaceutical industries.
Selected optional modules
- Advanced biochemical techniques (LIFE224)
- Advanced genetics techniques (LIFE226)
- Advanced techniques in animal behaviour, health and welfare (LIFE239)
- Animal behaviour (LIFE211)
- Cell signalling in health and disease (LIFE202)
- Comparative animal physiology (LIFE212)
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- Evolutionary biology (LIFE213)
- Molecular science (LIFE237)
- Pathological basis of animal diseases (LIFE240)
- The immune system in health and disease (LIFE221)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205).

Year Three
Core modules
- Advanced skills in bioveterinary sciences (LIFE341)
- Animal nervous and musculoskeletal disorders (LIFE344)
- Biology of veterinary pathogens: lessons for disease control (LIFE367)
- Research project (LIFE363)
- Veterinary epidemiology and public health (LIFE328).

Selected optional modules
- Conservation biology (LIFE326)
- Current skills and topics in evolutionary biology (LIFE324)
- Current topics in animal behaviour (LIFE322)
- Integrative comparative animal physiology (LIFE339)
- The body in motion: musculoskeletal functioning in health, performance and disease (LIFE335).

Year Four
Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.
Key modules

Year One

Core modules
- Applied genetic and molecular technologies (LIFE108)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Molecules and cells (LIFE101).

Selected optional modules
- Animal biodiversity (LIFE112)
- Biochemical methods (LIFE122)
- Biochemistry and biomedical sciences (LIFE102)
- Biology and ecology field skills (LIFE124)
- Developmental biology: embryology and mechanisms of development (LIFE114)
- Introduction to physiology and pharmacology (LIFE106)
- Microbiology (LIFE110).

Year Two

Core modules
- Advanced genetics techniques (LIFE226)
- E-biology: informatics for life sciences (LIFE225)
- Essential skills for life sciences II (LIFE223)
- Evolutionary biology (LIFE213)
- From genes to proteins (LIFE201)
- Molecular and medical genetics (LIFE208)
- Molecular science (LIFE237).

Selected optional modules
- Advanced biochemical techniques (LIFE224)
- Advanced microbiological techniques (LIFE228)
- Biotechnology (LIFE210)
- Endocrine and neuro-physiology (LIFE204)
- Principles of pharmacology (LIFE207)
- Techniques in cell biology (LIFE227)
- The immune system in health and disease (LIFE221)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205)
- Virology (LIFE209).

Year Three

Core modules
- Advanced data-analysis for genetics (LIFE377)
- Advanced skills in genetics (LIFE319)
- Current skills and topics in evolutionary biology (LIFE324)
- Gene expression and development (LIFE323)
- Human and clinical genetics (LIFE321)
- Research project (LIFE363).

Selected optional modules
- Bacterial disease mechanisms (LIFE318)
- Genes and cancer (LIFE302)
- Genome biology and technology (LIFE342)
- Viral disease mechanisms (LIFE320).

Year Four

Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.

Human Physiology BSc (Hons)

UCAS code: B120

Programme length: 3 years

Human Physiology is the science of how the body works and is one of the fundamental disciplines of biology and modern medicine.

Physiology investigates the interaction of molecules, cells, tissues and organs, and how these parts make up the whole body. Human Physiology at Liverpool has a focus on cellular and molecular mechanisms of disease. As you work through your degree here at Liverpool your knowledge of physiology will expand through learning from experts in their fields. There is an emphasis on integrating molecular, cellular, systems and whole body function, which distinguishes human physiology from other life science degrees. A degree in Human Physiology will give you a solid foundation for postgraduate medicine or dentistry, research or further study and many other career pathways.
Some of the major research areas covered within Human Physiology at the University of Liverpool are neurodegenerative aging and neuronal signalling, oncology, regenerative medicine and stem cell physiology not forgetting signalling in smooth muscle (in the Centre for Better Births) and auto immune diseases in children (Alder Hey Children's Hospital).

**Programme in detail**

Our excellence in research provides the basis for a BSc Honours programme that aims to provide a supportive learning environment. Students are enabled to develop academic competence at the highest level attainable, and are introduced to the forefront of current knowledge in human physiology.

We are keen to recruit students with a strong interest in biology/human biology, whether they intend to follow a career in the NHS including medicine, dentistry, as a research physiologist or simply wish to take their fascination for biology/human biology further.

Our practical modules cover experimental and human physiology, and our lecture modules include neuroscience, regulatory physiology, neuromuscular physiology, perspectives in physiology research and cell signalling in health and disease. The schedule for the final year human physiology projects allows our students to immerse themselves in their own specialised research for 10 weeks in an active clinical or research laboratory environment. We equip our graduates with a range of skills that prepares them for future employment in a wide range of careers both in and out of science.

You may wish to defer your graduation and take up the opportunity to continue your studies and follow our MBiolSci programme, so extending your degree by one year. In addition to this master’s opportunity there are also other postgraduate opportunities which include MSc, MRes or our prestigious Welcome Trust four-year PhD programme that has run here at the University of Liverpool for more than 25 years, which continues to provide one avenue for our human physiology graduates to embark on a research career.

**Key modules**

**Year One**

**Core modules**
- Biochemical methods (LIFE122)
- Developmental biology: embryology and mechanisms of development (LIFE114)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Introduction to physiology and pharmacology (LIFE106)
- Molecules and cells (LIFE101).

**Selected optional modules**
- Applied genetic and molecular technologies (LIFE108)
- Biochemistry and biomedical sciences (LIFE102)
- Microbiology (LIFE110).

**Year Two**

**Core modules**
- Cell signalling in health and disease (LIFE202)
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- Endocrine and neuro-physiology (LIFE204)
- Essential skills for life sciences II (LIFE223)
- Experimental physiology (LIFE232)
- Practical human physiology (LIFE229)
- Techniques in cell biology (LIFE227)
- The immune system in health and disease (LIFE221)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205).

**Selected optional modules**
- Biological chemistry (LIFE245)
- Comparative animal physiology (LIFE212)
- From genes to proteins (LIFE201)
- Molecular and medical genetics (LIFE208)
- Principles of pharmacology (LIFE207).

Continued over...
Year Three
Core modules
- Advanced skills in physiology (LIFE308)
- Cell signalling in health and disease (LIFE305)
- Data handling for physiologists (LIFE310)
- Principles of molecular physiology research (LIFE309)
- Research project (LIFE363).

Selected optional modules
- Neuromuscular physiology and disease (LIFE311)
- Specialised body systems: development, disease and regeneration (LIFE332)
- The body in motion: musculoskeletal functioning in health, performance and disease (LIFE335)
- The dynamic cell: membrane traffic in health and disease (LIFE307).

Year Four
Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master's (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.

Microbiology BSc (Hons)
UCAS code: C500
Programme length: 3 years

In spite of their size, the impact of microbes on the planet is so extensive that life as we know it could not exist without them.

In addition, microbes 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.

Programme in detail
This programme covers a broad range of topics, with in-depth knowledge of both natural processes and human affairs. You will study modules such as Microbial diversity and versatility, Biotechnology and Advanced microbiological techniques.

You will be able to identify individual species and grow them in pure culture, using aseptic techniques so that they can be safely handled and examined by microbiological methods. Project work will include the use of specialised research equipment alongside the members of the Microbiology Research Group and members of other departments, including medical and veterinary microbiologists in the Institute of Infection and Global Health and the Liverpool School of Tropical Medicine.

Key modules
Year One
Core modules
- Biochemical methods (LIFE122)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Microbiology (LIFE110)
- Molecules and cells (LIFE101).

Selected optional modules
- Advanced genetic and molecular technologies (LIFE108)
- Biochemistry and biomedical sciences (LIFE102)
- Introduction to animal infectious diseases, epidemiology and public health (LIFE126).

Year Two
Core modules
- Advanced microbiological techniques (LIFE228)
- Biotechnology (LIFE210)
- Essential skills for life sciences II (LIFE223)
- Techniques in cell biology (LIFE227)
- Virology (LIFE209).

Selected optional modules
- Advanced genetics techniques (LIFE226)
- Cell signalling in health and disease (LIFE202)
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- From genes to proteins (LIFE201)
- Molecular and medical genetics (LIFE208)
- Molecular science (LIFE237)
- Practical skills in tropical medicine (LIFE236)
- The immune system in health and disease (LIFE221).
Year Three
Core modules
- Advanced skills in microbiology (LIFE325)
- Bacterial disease mechanisms (LIFE318)
- Microbial diversity and versatility (LIFE329)
- Research project (LIFE363)
- Viral disease mechanisms (LIFE320).

Selected optional modules
- Advanced biotechnology (LIFE327)
- Genome biology and technology (LIFE342)
- Parasitology (LIFE361)
- Topics in global health (LIFE340).

Year Four
Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.

Pharmacology BSc (Hons)
UCAS code: B210
Programme length: 3 years

Pharmacology is an exciting branch of experimental science concerned with drugs and how they work in the fight against disease.

You can be part of the UK’s largest Pharmacology department by studying at the University of Liverpool. Taught by leading academics who are active researchers in their fields in a rich and vibrant environment, you will study the physiological and biochemical processes underlying diseases such as AIDS, malaria, asthma, cancer, cardiovascular and neurological disease, and learn how drug molecules can be designed to relieve symptoms and combat the disease process.

This course provides an advanced programme using different forms of teaching, including lecture-based study of classical pharmacology, physiology, cell biology, biochemistry, molecular toxicology, cancer pharmacology, and many others.

You will take part in small group tutorials, practical classes, and conduct an original research project and a library dissertation on two topics that are the subject of active research in the Department. Our local, national and international links with other leading academic institutions as well as industry will provide you with exposure to a wealth of opportunities.

Furthermore, the practical nature of the degree means you will be better prepared to apply for careers in research, including graduate entry to medical school or into a PhD or master’s programme. Our graduates move into careers in various sectors, which include large and small pharmaceutical and biotech industries and academic research, both nationally and internationally.

Programme in detail
The Pharmacology programme provides an advanced programme of study that includes modules in pharmacology, physiology, cell biology, biochemistry and molecular biology. In the final year, you will study pharmacology full-time, learning the most up-to-date pharmacological concepts and knowledge from a practical viewpoint.

You will participate in lectures on topics such as cardiovascular and respiratory pharmacology, molecular and neuropharmacology, drug metabolism, chemotherapy and molecular toxicology. You will take part in tutorials and practical classes and conduct an original research project and library dissertation on a topic that is the subject of active research in the Department.

Key modules
Year One
Core modules
- Biochemical methods (LIFE122)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Introduction to physiology and pharmacology (LIFE106)
- Molecules and cells (LIFE101).
Selected optional modules

- Animal biodiversity (LIFE112)
- Applied genetic and molecular technologies (LIFE108)
- Biochemistry and biomedical sciences (LIFE102)
- Developmental biology: embryology and mechanisms of development (LIFE114)
- Microbiology (LIFE110).

Year Two

Core modules

- Biological chemistry (LIFE245)
- Chemical techniques (CHEM022)
- Drug action (LIFE206)
- Essential skills for life sciences II (LIFE223)
- Pharmacological chemistry (CHEM038)
- Practical pharmacology (LIFE234)
- Principles of pharmacology (LIFE207).

Selected optional modules

- Advanced biochemical techniques (LIFE224)
- Cell signalling in health and disease (LIFE202)
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- Endocrine and neuro-physiology (LIFE204)
- Molecular and medical genetics (LIFE208)
- Molecular science (LIFE237)
- Practical human physiology (LIFE229)
- The immune system in health and disease (LIFE221)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205).

Year Three

Core modules

- Cancer pharmacology (LIFE314)
- Cardiovascular and respiratory pharmacology (LIFE313)
- Chemotherapy and cellular pharmacology (LIFE312)
- Drug metabolism and drug response (LIFE315)
- Molecular and neuropharmacology (LIFE317)
- Molecular toxicology (LIFE316)
- Pharmacology research projects (PHAR660).

Selected optional modules

- Life sciences work-based placement (LIFE399).

Year Four

Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.

Tropical Disease Biology BSc (Hons)

UCAS code: C111

Programme length: 3 years

This programme will appeal to students who are interested in a range of aspects of the biology of infectious disease in a global context, but with an emphasis on the tropics.

A practical skills module in tropical disease biology will be offered in Year Two.

Programme in detail

Year Three is based in the Liverpool School of Tropical Medicine where the focus is on parasitic protozoa and helminths. Modules include topics on parasitology (including immunology and molecular biology), vector biology, chemotherapy, topics in global health, and a research project.

A range of current issues will be highlighted, including emerging diseases and the feasibility of disease eradication programmes in the tropics.

In addition, students will develop core transferable skills (spoken and written communication, team working, project management and computing) and carry out a major research project.

Key modules

Year One

Core modules

- Biochemistry and biomedical sciences (LIFE102)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Introduction to physiology and pharmacology (LIFE106)
- Microbiology (LIFE110)
- Molecules and cells (LIFE101).
Selected optional modules

- Biochemical methods (LIFE122)
- Biology and ecology field skills (LIFE124).

**Year Two**

**Core modules**

- Advanced microbiological techniques (LIFE228)
- Essential skills for life sciences II (LIFE223)
- Practical skills in tropical medicine (LIFE236)
- Principles of pharmacology (LIFE207)
- The immune system in health and disease (LIFE221)
- Veterinary parasitology and public health (LIFE216)
- Virology (LIFE209).

**Selected optional modules**

- Biotechnology (LIFE210)
- Cell signalling in health and disease (LIFE202)
- Comparative animal physiology (LIFE212)
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- Endocrine and neuro-physiology (LIFE204)
- Evolutionary biology (LIFE213)
- From genes to proteins (LIFE201)
- Molecular and medical genetics (LIFE208)
- Molecular science (LIFE237)
- Techniques in cell biology (LIFE227)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205)
- Tropical ecology field course (LIFE222).

**Year Three**

**Core modules**

- Advanced skills in tropical disease biology (LIFE357)
- Chemotherapy of parasitic disease (LIFE338)
- Parasitology (LIFE361)
- Research project (LIFE363)
- Topics in global health (LIFE340)
- Vector biology: theory, research and implementation (LIFE359).

**Selected optional modules**

- Advanced biotechnology (LIFE327)
- Bacterial disease mechanisms (LIFE318)
- Biochemical messengers and signal transduction (LIFE304)
- Conservation biology (LIFE326)
- Drug metabolism and drug response (LIFE315)
- Molecular medicine (LIFE306)
- Veterinary epidemiology and public health (LIFE328)
- Viral disease mechanisms (LIFE320).

**Year Four**

Students can transfer into the **C900 (MBiolSci)** programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.

---

**Zoology BSc (Hons)**

**UCAS code: C300**

**Programme length: 3 years**

Zoology is the study of animal life, from whole animals and populations through to tissues, their cells and molecular structures.

Zoologists are concerned with the conservation of biodiversity. They also look at the behavioural patterns of animals, animal diseases and how they survive in their natural habitats. Zoology graduates go on to find work in zoos, in wildlife conservation and management, in wildlife documentary or they go on to study Veterinary Science.

**Programme in detail**

We aim to provide you with a broad base of animal knowledge, with the opportunity to specialise later on. Specialist topics include animal behaviour, conservation biology, ecology and animal physiology.

In addition, students will develop core transferable skills (spoken and written communication, team working, project management and computing) and carry out a major research project.

Continued over...
**Fieldwork opportunities**
You will visit zoologically rich locations during field courses and fieldwork projects. Fieldwork projects can be carried out in a wide range of habitats including the Wirral and Chester Zoo. Residential field courses are part of the Year One and Year Three syllabus. These are held in the southern Lake District and in the South of France. In addition, you will have the opportunity to take a tropical field course to Uganda in Year Two.

**Key modules**

**Year One**

**Core modules**
- Animal biodiversity (LIFE112)
- Biology and ecology field skills (LIFE124)
- Ecology and the global environment (LIFE120)
- Essential skills for life sciences I (LIFE109)
- Evolution (LIFE103)
- Experimental skills in current biology (LIFE107)
- Grand challenges in biology (LIFE105)
- Molecules and cells (LIFE101).

**Selected optional modules**
- Developmental biology: embryology and mechanisms of development (LIFE114)
- Introduction to animal husbandry (LIFE118)
- Marine ecosystems: diversity, processes and threats (ENVS122).

**Year Two**

**Core modules**
- Advanced experimental design and analysis (LIFE238)
- Advanced techniques in zoology (LIFE230)
- Animal behaviour (LIFE211)
- Biodiversity practical skills (LIFE233)
- Comparative animal physiology (LIFE212)
- Essential skills for life sciences II (LIFE223)
- Evolutionary biology (LIFE213)
- Population and community ecology (LIFE214).

**Selected optional modules**
- Advanced animal husbandry (LIFE217)
- Advanced genetics techniques (LIFE226)
- E-biology: informatics for life sciences (LIFE225)
- E-biology: informatics for life sciences II (LIFE242)
- Endocrine and neuro-physiology (LIFE204).

- Marine ecophysiology, ecology and exploitation (ENVS1151)
- Molecular and medical genetics (LIFE208)
- Techniques in cell biology (LIFE227)
- The immune system in health and disease (LIFE221)
- The multicellular organism: tissues, development, regeneration and aging (LIFE205)
- Tropical ecology field course (LIFE222)
- Veterinary form and function (LIFE215)
- Veterinary parasitology and public health (LIFE216).

**Year Three**

**Core modules**
- Advanced skills in zoology (LIFE331)
- Research project (LIFE363)
- Zoology field course (LIFE333).

**Selected optional modules**
- Advanced topics in ecology (LIFE337)
- Conservation biology (LIFE326)
- Current skills and topics in evolutionary biology (LIFE324)
- Current topics in animal behaviour (LIFE322)
- Integrative comparative animal physiology (LIFE339)
- Life sciences work-based placement (LIFE399).

**Year Four**
Students can transfer into the C900 (MBiolSci) programme to complete a four-year integrated master’s (subject to performance). This offers 6-week internships and one-year placement opportunities in the UK or abroad (subject to availability).

See pages 26-37 for module descriptions.

**Biological Sciences leading to BSc (Hons) (4-year route with Foundation Year at Carmel College)**

**UCAS code:** C108

**Programme length:** 4 (1+3) years

Intended for adult learners or undergraduates who wish to take up Biology but do not have the appropriate subject background, Biological Sciences offers a foundation year at nearby Carmel College.
This is not a programme in itself but acts as a springboard onto other Life Science degrees. This deferred choice programme means that you have the flexibility and freedom to switch to your chosen degree after completing the foundation year (Year Zero).

The aim of this programme is to make you an expert in one particular field with the ability to cross discipline boundaries, a highly attractive prospect to employers.

Programme in detail
Year Zero comprises introductory modules taught at Carmel College. Years One, Two and Three will continue at the University of Liverpool following the chosen area of interest through to BSc (Hons) or MBiolSci (Hons) completion.

Programme options are:
- Biochemistry (C700)
- Biological and medical sciences (C130)
- Biological sciences (deferred choice) (C100)
- Bioveterinary science (D900)
- Genetics (C400)
- Human physiology (B120)
- Marine biology (C160)
- Marine biology with oceanography (C1F7)
- Microbiology (C500)
- Pharmacology (B210)
- Tropical disease biology (C111)
- Zoology (C300).

Further information about progression subjects can be found at carmel.ac.uk/courses/44/Biological-Sciences

Year Zero
You will be based at Carmel College in St Helens, about nine miles from the main University campus. Carmel College offers small class sizes and high standards of academic achievement. The programme, which is moderated by University staff, comprises introductory modules in biology, applications of biology and mathematics, plus either chemistry or geography.

Years One to Three
You will join students on your chosen degree at the main campus. For details please see individual programme listings within this brochure or online at liverpool.ac.uk/study/undergraduate/courses

See pages 26-37 for module descriptions.

MBiolSci (Hons) integrated master’s
UCAS code: C900
Programme length: 4 years

This is a four-year integrated master’s programme aimed at developing enhanced research and personal skills for students seeking a high-level career in research (eg studying for PhD or working industry or those seeking to enhance their qualification).

For the first three years of study, students will select one of the available pathways (Anatomy and Human Biology, Biochemistry, Bioveterinary Science, Genetics, Microbiology, Pharmacology, Human Physiology, Tropical Disease Biology, Zoology, Biological and Medical Sciences or Biological Sciences) and will study a mix of theory and practical modules appropriate to the BSc Honours programmes for these areas. Students in three year programmes can transfer onto C900 for a fourth year, subject to performance.

During the fourth (master’s) year, students will take advanced modules to further enhance their research and personal skills and will join a research team to undertake a significant research project. Students will also have the opportunity to apply for a research internship in the UK or overseas, or to apply to spend time working in industry or in other enterprises in the final year.

The MBiolSci programme consists of four years of study. For the first three years, students will follow a pathway that constitutes one of our current three-year BSc Honours degree programmes.
These are:
- Anatomy and Human Biology B110 (pages 08-09)
- Biochemistry C700 (pages 09-10)
- Biological and Medical Sciences C130 (pages 11-12)
- Biological Sciences C100 (pages 12-14)
- Bioveterinary Science D900 (pages 14-15)
- Genetics C400 (pages 15-16)
- Human Physiology B120 (pages 16-18)
- Microbiology C500 (pages 18-19)
- Pharmacology B210 (pages 19-20)
- Tropical Disease Biology C111 (pages 20-21)
- Zoology C300 (pages 21-22).

In Year Four, students will take the core modules, Research methods and applications in biological sciences and a choice between Advanced statistics for biological research and Informatics for life sciences, together with a 60-credit research project. In addition, students will take either a 30-credit internship undertaken as a placement in the summer period between years Three and Four, or a total of 30 credits of other M level modules. These internships may be in the UK or in our partner institutions abroad, for instance in Thailand or China. Students also have the opportunity to spend part or all of the final year gaining practical experience, for example in industry.

The title of your degree award will reflect your pathway of choice eg Master of Biological Sciences (Biochemistry).

Key modules

Years One, Two and Three
Students should take core and optional modules from the pathway of choice.

Year Four
Core modules
- Research methods and applications in biological sciences (LIFE731)
and
- Advanced statistics for biological research (LIFE707)
or
- Informatics for life sciences (LIFE721).

Selected optional modules
Choose from:
- Research internship (LIFE701)
or 30 credits typically from:
- Advanced topics in animal behaviour (LIFE743)
- Advanced topics in bacterial and fungal diversity and versatility (LIFE729)
- Advanced topics in biotechnology (LIFE722)
- Advanced topics in cell signalling (LIFE713)
- Advanced topics in comparative physiology (LIFE745)
- Advanced topics in molecular medicine (LIFE715)
- Advanced topics in viral disease mechanisms (LIFE720)
- Cell and molecular biology of cancer (BIOL760)
- Evolution and behaviour (LIFE709)
- Post-genomic bioinformatics (LIFE708)
- Programming for life sciences (LIFE733).

See pages 26-37 for module descriptions.

Degrees offered with other departments

Marine Biology BSc (Hons)
UCAS code: C160
Programme length: 3 years

Marine Biology MMarBiol (Hons)
UCAS code: C161
Programme length: 4 years

From microscopic algae to giant whales, most of our planet's life is found in the oceans. As a marine biologist, you will learn about the behaviour, physiology, and ecology of marine organisms, and how marine food webs are influenced by global warming and fisheries.

We produce highly employable marine biologists, able to apply their knowledge and skills to fields including monitoring, pollution, conservation, and aquaculture.

Our four-year integrated master's programme is designed to train high performing marine biologists to the best possible standard to prepare them for PhD research and employment.

For more information, download the Earth, Ocean and Ecological Sciences brochure from liverpool.ac.uk/study/undergraduate/courses/publications.
**Marine Biology with Oceanography BSc (Hons)**

**UCAS code: C1F7**

**Programme length: 3 years**

Life first emerged in the ocean and has spread throughout this dynamic environment. The distribution, growth and success of marine organisms is affected by the interaction of biological, chemical and physical processes operating in the ocean.

You will study the interaction between the biology of marine organisms, the composition and properties of seawater and the physical processes operating in the oceans.

There is a strong emphasis on marine sustainability and ecosystem management, marine biogeochemistry, the climate system and numerical skills. Training at sea, in the field, and in the laboratory in Years One, Two and Three will provide you with the essential skills required to be a successful marine scientist including practical experience of data collection and processing, analysis and interpretation.

For more information, download the Earth, Ocean and Ecological Sciences brochure from liverpool.ac.uk/study/undergraduate/courses/publications

---

*My programme has given me experience of research. The thing I enjoy most is definitely the dissection aspect, because not a lot of universities offer this, which is one of the reasons I picked the University of Liverpool. It just helps to learn things that are actually real, instead of from a book or a model.*

Yasmina Sahraoui
Anatomy and Human Biology BSc (Hons)
## Core and selected optional modules overview Year One

<table>
<thead>
<tr>
<th>Module title</th>
<th>Semester</th>
<th>Credit</th>
<th>Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal biodiversity</td>
<td>2</td>
<td>15</td>
<td>Fosters an understanding of structure and function of the basic body plan of the major groups of animals.</td>
</tr>
<tr>
<td>Applied genetic and molecular technologies</td>
<td>2</td>
<td>15</td>
<td>This module provides the knowledge and understanding of the structure of nucleic acids and how these molecules encode the properties of cells. You will develop your knowledge and understanding of the mechanisms that lead to inheritance in offspring and be introduced to the ethical implications of genetic and molecular technologies.</td>
</tr>
<tr>
<td>Biochemical methods</td>
<td>2</td>
<td>7.5</td>
<td>Introduces a range of practical skills and analytical techniques that are applicable to many fields of modern biology.</td>
</tr>
<tr>
<td>Biochemistry and biomedical sciences</td>
<td>2</td>
<td>15</td>
<td>This module will describe the major dietary components for humans and other organisms, and the processes that result in their digestion and absorption. You will learn about the mechanisms and processes that regulate carbohydrate, fat and protein metabolism and how imbalances in nutrition can lead to lifestyle diseases and how genetic or infectious diseases can result in impaired ability to generate energy. You will develop your knowledge and understanding in biochemistry and biomedicine and ability to apply, evaluate and interpret this knowledge to solve problems.</td>
</tr>
<tr>
<td>Biology and ecology field skills</td>
<td>2</td>
<td>7.5</td>
<td>This practical module aims to instruct students in a range of ecological skills in fieldwork that will have a wide application to many fields of modern biology. Students will develop their skills in the identification of plants and animals, communities and measurement of selected ecological processes. Students will also develop quantitative skills in field ecology and how they can be used to solve fundamental and applied problems.</td>
</tr>
<tr>
<td>Circulatory and respiratory anatomy</td>
<td>2</td>
<td>15</td>
<td>Provides an understanding of the principal concepts underlying the cardiovascular, lymphatic and respiratory systems of the human body.</td>
</tr>
<tr>
<td>Core concepts of anatomy</td>
<td>1</td>
<td>7.5</td>
<td>Provides an introduction to topographical anatomy and neuroanatomy and introduces the key concepts of anatomy that underlie the main systems of the body. You will develop your knowledge and understanding in human biology, and ability to apply, evaluate and interpret this knowledge to solve problems.</td>
</tr>
<tr>
<td>Developmental biology: embryology and mechanisms of development</td>
<td>2</td>
<td>15</td>
<td>Describes the processes that regulate development and the general properties of stem cells and explains the mechanisms of germ line development and fertilisation. This module will highlight the experimental evidence underpinning this knowledge of development and fertilisation. You will develop your knowledge and understanding in human biology, and ability to apply, evaluate and interpret this knowledge to solve problems.</td>
</tr>
<tr>
<td>Ecology and global environment</td>
<td>2</td>
<td>15</td>
<td>Describes the physical and chemical contexts of the biosphere, the cycling of important elements at different scales and the distribution of biomes and the ecosystem concept.</td>
</tr>
<tr>
<td>Essential skills for life sciences</td>
<td>1 and 2</td>
<td>15</td>
<td>Develops the essential skills that are required to be competent life scientists and enhances employability prospects.</td>
</tr>
<tr>
<td>Module title</td>
<td>Semester</td>
<td>Credit</td>
<td>Module description</td>
</tr>
<tr>
<td>------------------------------------------------------------------</td>
<td>----------</td>
<td>--------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Evolution LIFE103</td>
<td>1</td>
<td>15</td>
<td>Introduces evolutionary concepts and theories and describes the genetic basis of evolutionary changes. This module introduces interrelationships of life forms and biodiversity by descriptions of specialised biological systems and develops the knowledge and understanding of the subject and the ability to apply, evaluate and interpret this knowledge to solve problems in biology.</td>
</tr>
<tr>
<td>Experimental skills in current biology LIFE107</td>
<td>1 and 2</td>
<td>15</td>
<td>Introduces a range of practical skills and techniques that are of general use in subjects across the life sciences.</td>
</tr>
<tr>
<td>Grand challenges in biology LIFE105</td>
<td>1</td>
<td>7.5</td>
<td>Introduces the themes that are driving in biological research in Liverpool and globally.</td>
</tr>
<tr>
<td>Introduction to animal husbandry LIFE118</td>
<td>2</td>
<td>15</td>
<td>This module introduces the present day structure of the agriculture industry and the seasonality of production of the various domesticated animal species, the breeds used and the management employed. You will learn about the role of various crops and crop by-products as food sources and how crop, animal and mineral products are evaluated as foods for animals. You will develop your knowledge on the nutritional requirements of animals and how they are determined and how to assess and formulate rations to prevent poor performance, metabolic disease and toxicities. You will be introduced to the theory of population genetics and their application to practical animal breeding and learn how to apply, evaluate and interpret problems in animal husbandry.</td>
</tr>
<tr>
<td>Introduction to animal infectious disease, epidemiology and public health LIFE126</td>
<td>2</td>
<td>15</td>
<td>This module will introduce the biology of a range of veterinary infectious diseases. Epidemiology and basic concepts in disease epidemiology, will be introduced and the effects/association diseases have on animals, society and the environment. You will be taught in small tutorial groups by research active teaching staff to develop information on a specific disease and present your group findings as a PowerPoint presentation at a “mini-conference”. The module is assessed through coursework and a final exam.</td>
</tr>
<tr>
<td>Introduction to physiology and pharmacology LIFE106</td>
<td>2</td>
<td>15</td>
<td>Provides a grounding in the concepts and principles that underlie human systems biology and introduces the concepts of interactions of drugs and other exogenous chemicals on biological processes.</td>
</tr>
<tr>
<td>Marine biology: life in the seas and oceans ENVS121</td>
<td>1</td>
<td>15</td>
<td>This module will introduce students to the main groups of organisms found in the marine environment. Students will encounter these groups in subsequent modules and field studies and gaining a familiarity with them in this module will enable them to recognise them and understand their role in marine ecosystems.</td>
</tr>
<tr>
<td>Marine ecosystems: diversity, processes and threats ENVS122</td>
<td>2</td>
<td>15</td>
<td>This module aims to introduce students to the diversity of ecosystem types in the marine environment and the various threats that they face.</td>
</tr>
<tr>
<td>Microbiology LIFE110</td>
<td>2</td>
<td>15</td>
<td>This module describes how microbes play crucial roles in maintaining the natural environment and explains the role of microbes in disease processes and how the immune system protects against infections. The module will highlight the roles of microbes in biotechnological processes and develop your knowledge and understanding in microbiology, and ability to apply, evaluate and interpret this knowledge to solve problems in microbiology.</td>
</tr>
<tr>
<td>Molecules and cells LIFE101</td>
<td>1</td>
<td>15</td>
<td>This module will explore the basic of structure, composition and function of cells and explain the core concepts relating to the organisation and specialisation of eukaryotes, prokaryotes and viruses. You will learn about the cellular components involved in the regulation of key functions such as the generation of energy, movement, cell growth and division and differentiation.</td>
</tr>
</tbody>
</table>
# Core and selected optional modules overview Year Two

<table>
<thead>
<tr>
<th>Module title</th>
<th>Semester</th>
<th>Credit</th>
<th>Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced animal husbandry LIFE217</td>
<td>1</td>
<td>15</td>
<td>Integrates knowledge of nutrition, reproduction, genetics and breeding, behaviour and welfare of domesticated animals, with an assessment of the environment.</td>
</tr>
<tr>
<td>Advanced biochemical techniques LIFE224</td>
<td>2</td>
<td>7.5</td>
<td>Provides practical training in a number of techniques used in biochemistry, including analysis of enzyme activity and stability and protein purification and analysis using chromatography and electrophoresis.</td>
</tr>
<tr>
<td>Advanced experimental design and analysis LIFE238</td>
<td>2</td>
<td>7.5</td>
<td>Raises your competence and confidence in formulating and testing hypotheses and choosing the appropriate statistical analyses.</td>
</tr>
<tr>
<td>Advanced genetics techniques LIFE226</td>
<td>2</td>
<td>7.5</td>
<td>Provides practical training that will help you to carry out your projects in genetics.</td>
</tr>
<tr>
<td>Advanced microbiological techniques LIFE228</td>
<td>2</td>
<td>7.5</td>
<td>Develops practical, research skills in microbiology by illustrating key concepts in microbiology.</td>
</tr>
<tr>
<td>Advanced techniques in animal behaviour, health and welfare LIFE239</td>
<td>1</td>
<td>7.5</td>
<td>This module will develop your skills in animal handling and ability to assess the health and welfare of captive animals. You will also develop your knowledge and understanding in bioveterinary sciences, and the ability to interpret, evaluate, and apply this knowledge to health and welfare problems.</td>
</tr>
<tr>
<td>Advanced techniques in zoology LIFE230</td>
<td>2</td>
<td>7.5</td>
<td>Provides you with practical experience of a number of techniques used in zoology.</td>
</tr>
<tr>
<td>Anatomy of the abdomen and pelvis LIFE235</td>
<td>1</td>
<td>15</td>
<td>Develops the ability to understand the structural and functional anatomy of the human abdomen and pelvis. This module will teach you the processes involved in the normal development and maturation of these structures, and following pathological changes.</td>
</tr>
<tr>
<td>Anatomy of the head and neck LIFE220</td>
<td>2</td>
<td>15</td>
<td>Develops knowledge and understanding of the structural and functional anatomy of the human head and neck, and how these structures develop.</td>
</tr>
<tr>
<td>Animal behaviour LIFE211</td>
<td>1</td>
<td>15</td>
<td>Provides an introduction to the fundamental evolutionary principles that explain a wide range of animal behaviours.</td>
</tr>
<tr>
<td>Biodiversity practical skills LIFE233</td>
<td>1</td>
<td>7.5</td>
<td>This module will develop your ability to map taxonomic and evolutionary relationships and construct and use keys for taxonomy. You will dissect and observe the morphology of specific organ systems and demonstrate knowledge and understanding of the subject and to apply, evaluate and interpret this knowledge to solve problems in biology.</td>
</tr>
<tr>
<td>Biological chemistry LIFE245</td>
<td>2</td>
<td>15</td>
<td>This module aims to develop knowledge and understanding of the chemical process that underpins biology. Contents include thermodynamics, chemistry of water, organic structure and reactions, kinetics and enzyme activity, spectroscopy and bioinorganic and redox chemistry.</td>
</tr>
<tr>
<td>Biotechnology LIFE210</td>
<td>2</td>
<td>15</td>
<td>This module introduces the ways in which biology is utilised for commercial purposes and describes the production of antibiotics, biomass, single cell protein, biopolymers and vaccines. You will develop your knowledge and understanding in biotechnology, and the ability to apply, evaluate and interpret this knowledge to solve problems in biotechnology.</td>
</tr>
<tr>
<td>Module title</td>
<td>Semester</td>
<td>Credit</td>
<td>Module description</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>----------</td>
<td>--------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cell signalling in health and disease LIFE202</td>
<td>2</td>
<td>15</td>
<td>This module gives an understanding of the molecular mechanisms that allow cells to communicate with each other and explains the general principles of these signalling mechanisms and then goes on to describe some of these in more detail. This module also illustrates how defects in these signalling processes can result in a variety of diseases.</td>
</tr>
<tr>
<td>Chemical techniques CHEM022</td>
<td>2</td>
<td>7.5</td>
<td>The aim of this module is to introduce students to the basic techniques used in synthetic organic chemistry.</td>
</tr>
<tr>
<td>Comparative animal physiology LIFE212</td>
<td>2</td>
<td>15</td>
<td>Describes the physiological problems encountered by animals in their natural environments, and how they are overcome.</td>
</tr>
<tr>
<td>Drug action LIFE206</td>
<td>2</td>
<td>15</td>
<td>This module will enable students to develop their understanding of the cardiovascular, endocrine and central nervous systems and the mechanisms by which drugs interact with physiological processes operating within each of these systems. It will provide an insight into the mechanisms of immune function and dysfunction, and the actions of drugs that target the immune system.</td>
</tr>
<tr>
<td>E-biology: informatics for life sciences LIFE225/LIFE242</td>
<td>1 or 2</td>
<td>7.5</td>
<td>Provides a practical appreciation of the nature and significance of both the scientific and ethical dimensions of digital data.</td>
</tr>
<tr>
<td>Endocrine and neuro-physiology LIFE204</td>
<td>2</td>
<td>15</td>
<td>This module aims to explain the essential background knowledge to understand basic neuroscience. This module will also provide an understanding of physiological homeostatic regulatory mechanisms, with particular regard to the endocrine and digestive systems and develop knowledge and understanding in physiology, and ability to apply, evaluate and interpret this knowledge to solve physiological problems.</td>
</tr>
<tr>
<td>Essential skills for life sciences II LIFE223</td>
<td>1 and 2</td>
<td>15</td>
<td>Further develops the essential life science skills that are required to improve your study skills.</td>
</tr>
<tr>
<td>Evolutionary biology LIFE213</td>
<td>1</td>
<td>15</td>
<td>Provides a modern framework for understanding how organisms evolve and the major transitions in evolution.</td>
</tr>
<tr>
<td>Experimental physiology LIFE232</td>
<td>2</td>
<td>7.5</td>
<td>Provides you with an understanding of physiological regulatory mechanisms, their importance in maintaining homeostasis and the consequences of system malfunctions.</td>
</tr>
<tr>
<td>From genes to proteins LIFE201</td>
<td>1</td>
<td>15</td>
<td>This module gives knowledge and understanding of the mechanisms involved in gene expression and how these mechanisms are regulated in prokaryotic and eukaryotic cells. You will gain the ability to explain how post-translational modifications modify protein structure and function and the ability to apply, evaluate and interpret this knowledge to solve problems in genetics.</td>
</tr>
<tr>
<td>Functional anatomy of the human locomotor system LIFE219</td>
<td>1</td>
<td>15</td>
<td>This module will develop your knowledge and understanding of the structural and functional anatomy of the human musculoskeletal system. You will also be able to understand the processes involved during joint and muscle activity.</td>
</tr>
<tr>
<td>Functional neuroanatomy LIFE218</td>
<td>2</td>
<td>15</td>
<td>Describes the structural organisation of the human nervous system, explaining how neuronal circuits are organised to control processes, the perception of sensations and the generation of movement and how advances in neuroimaging and micro anatomical technology have advanced our understanding of the human nervous system.</td>
</tr>
<tr>
<td>Laboratory identification of parasites and diagnosis of parasitism LIFE244</td>
<td>2</td>
<td>7.5</td>
<td>Introduces the methodology currently used to detect parasitism, and introduces parasitism identification skills for the major parasites and disease vectors of medical and veterinary significance.</td>
</tr>
</tbody>
</table>

Please note: modules are illustrative only and subject to change.  

Continued over...
### Core and selected optional modules overview Year Two (continued)

<table>
<thead>
<tr>
<th>Module title</th>
<th>Semester</th>
<th>Credit</th>
<th>Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine ecology field studies ENVS278</td>
<td>2</td>
<td>15</td>
<td>This module aims to increase students’ knowledge of how to study a broad range of coastal habitats and species. It will build knowledge and confidence in the ability to go on and undertake both field-based and laboratory-based marine ecological research in their careers going forward. This module relies heavily on active learning, with students completing their own data collection and working together, with guidance from academics, on how to generate useful outcomes.</td>
</tr>
<tr>
<td>Marine ecophysiology, ecology and exploitation ENVS251</td>
<td>2</td>
<td>15</td>
<td>This module aims to provide students with essential background knowledge in marine ecology, ecophysiology and resource exploitation required for study at higher levels. Students will also develop the ability to evaluate and critique the scientific literature, as well as the ability to draw on relevant information from multiple topics areas to address.</td>
</tr>
<tr>
<td>Molecular and medical genetics LIFE208</td>
<td>2</td>
<td>15</td>
<td>Introduces the range of biological mechanisms that control the structure and stability of the genetic material.</td>
</tr>
<tr>
<td>Molecular science LIFE237</td>
<td>1</td>
<td>7.5</td>
<td>This module aims to provide students with practical experience in a number of techniques used in molecular biology and equip students to perform analysis of DNA fragments by agarose gel electrophoresis. You will be introduced to PCR-based assays for gene cloning and demonstrate methods used for cloning, and analysing genes.</td>
</tr>
<tr>
<td>Pathological basis of animal diseases LIFE240</td>
<td>2</td>
<td>15</td>
<td>Develops the ability to describe the haematological and immunological responses of animals in veterinary disease states.</td>
</tr>
<tr>
<td>Population and community ecology LIFE214</td>
<td>2</td>
<td>15</td>
<td>Introduces you to the concepts and principles underlying the dynamic interactions between species within communities and populations.</td>
</tr>
<tr>
<td>Practical human physiology LIFE229</td>
<td>1</td>
<td>7.5</td>
<td>Equips you with the ability to apply appropriate statistical tools to define the normal range of physiological variables.</td>
</tr>
<tr>
<td>Practical pharmacology I LIFE231</td>
<td>1</td>
<td>7.5</td>
<td>This module aims to equip you with the ability to measure the effects of drugs on isolated tissues and their use in the study of drug/receptor interactions. You will take part in measuring the binding of drugs to receptors and learn to appreciate the range of analytical techniques used in the measurement of drug distribution. You will experience techniques for the measurement of the effects of drugs on memory; mechanisms of drug toxicity; and toxicity on isolated cells.</td>
</tr>
<tr>
<td>Practical pharmacology II LIFE234</td>
<td>2</td>
<td>7.5</td>
<td>This module aims to give students practical experience in many of the techniques specifically used in the study of Pharmacology. Students will gain a better understanding of relevant pharmacological principles. Students will develop their ability to evaluate and analyse experimental data.</td>
</tr>
<tr>
<td>Practical skills in tropical diseases LIFE236</td>
<td>2</td>
<td>7.5</td>
<td>Enhances knowledge and understanding of the biology and control of parasites of medical importance, and their vectors.</td>
</tr>
<tr>
<td>Principles of pharmacology LIFE207</td>
<td>1</td>
<td>15</td>
<td>Develops an understanding of the quantitative aspects of drug action on cellular receptors and demonstrates the relationship between drug efficacy and chemical structure.</td>
</tr>
<tr>
<td>Module title</td>
<td>Semester</td>
<td>Credit</td>
<td>Module description</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>----------</td>
<td>--------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Structure and dynamics of macromolecules</td>
<td>1</td>
<td>15</td>
<td>Provides knowledge and understanding of the latest methodologies and techniques that are used to study the fine detail of macromolecules.</td>
</tr>
<tr>
<td>Techniques in cell biology</td>
<td>1</td>
<td>7.5</td>
<td>Trains you in microscopy, and the ability to use different microscopic techniques to analyse cell structure and function.</td>
</tr>
<tr>
<td>The immune system in health and disease</td>
<td>1</td>
<td>15</td>
<td>Develops knowledge of the immune system and its role in protection against disease.</td>
</tr>
<tr>
<td>The multicellular organism: tissues, development, regeneration and aging</td>
<td>1</td>
<td>15</td>
<td>Extends knowledge of the structure and function of fundamental tissues, such as epithelial and connective tissue and of specialised tissues.</td>
</tr>
<tr>
<td>Tropical ecology field course</td>
<td>2</td>
<td>15</td>
<td>Introduces the ecology of tropical ecosystems and the field techniques used to study them, through staff-led field visits, seminars and student executed field studies.</td>
</tr>
<tr>
<td>Veterinary form and function</td>
<td>1</td>
<td>15</td>
<td>Explores the form and function of dogs with reference to large animals. Introduces the ability to explain the development, structure and function of key body systems in domestic species: reproductive/endocrine, nervous, musculoskeletal/ locomotor, cardiovascular/respiratory and digestive/excretory.</td>
</tr>
<tr>
<td>Veterinary parasitology and public health</td>
<td>2</td>
<td>15</td>
<td>Describes the major parasitic diseases of companion and food producing animals and related parasites that impact on global human health.</td>
</tr>
<tr>
<td>Virology</td>
<td>1</td>
<td>15</td>
<td>Introduces the fundamental features and properties of viruses and viral infections and builds on knowledge and understanding of the use and development of molecular biology technologies in virology and the capacity to describe problems associated with viruses and their control, and identify positive applications of viruses.</td>
</tr>
</tbody>
</table>

Please note: modules are illustrative only and subject to change.

---

### Core and selected optional modules overview Year Three

<table>
<thead>
<tr>
<th>Module title</th>
<th>Semester</th>
<th>Credit</th>
<th>Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced biotechnology</td>
<td>1</td>
<td>15</td>
<td>Describes current approaches to exploit microorganisms and microbial processes in the context of modern developments in biotechnology.</td>
</tr>
<tr>
<td>Advanced data-analysis for genetics</td>
<td>1 and 2</td>
<td>15</td>
<td>The module aims to provide students with data analysis skills required in a variety of contexts drawn from across modern genetics and an appreciation of their importance.</td>
</tr>
<tr>
<td>Advanced human topographical anatomy</td>
<td>1</td>
<td>15</td>
<td>Enhances knowledge of a particular topographical region through dissection and greatly improve dissection skills.</td>
</tr>
<tr>
<td>Advanced skills and contemporary themes in anatomical sciences</td>
<td>1</td>
<td>15</td>
<td>Enables you to evaluate the latest scientific literature and technologies in anatomical science and topical ethical issues of particular concern to anatomists, and to apply these skills to report and essay writing.</td>
</tr>
</tbody>
</table>

Please note: modules are illustrative only and subject to change.
### Core and selected optional modules overview Year Three

<table>
<thead>
<tr>
<th>Module title</th>
<th>Semester</th>
<th>Credit</th>
<th>Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced skills in biochemistry LIFE301</td>
<td>1 and 2</td>
<td>15</td>
<td>This module develops your science presentation skills in various formats and to various target audience and will enhance your ability to search, identify, apply, critically evaluate and interpret biochemical knowledge to solve complex problems. This module also provides advice, inspiration and guidance for career development and employability.</td>
</tr>
<tr>
<td>Advanced skills in biological and medical sciences LIFE365</td>
<td>1 and 2</td>
<td>15</td>
<td>This module enables you to evaluate the scientific literature and to apply these skills to presentations in various formats in groups and individually. You will enhance your problem-solving skills by data analysis exercises in relation to experimental methods in biological and medical sciences.</td>
</tr>
<tr>
<td>Advanced skills in biological sciences LIFE355</td>
<td>1 and 2</td>
<td>15</td>
<td>Enables you to evaluate the scientific literature and to apply these skills to report and essay writing and develops enhanced presentational skills, both oral and poster, in groups or as individuals.</td>
</tr>
<tr>
<td>Advanced skills in bioveterinary science LIFE341</td>
<td>1</td>
<td>15</td>
<td>Enables you to evaluate evidence from veterinary and animal industry related literature and industry reports to identify challenges and problems.</td>
</tr>
<tr>
<td>Advanced skills in genetics LIFE319</td>
<td>1 and 2</td>
<td>30</td>
<td>Enables you to critically evaluate scientific information in the context of genetics, including that obtained from the published literature, research seminars and online genetic databases. Familiarises you with topical issues and ethical considerations in genetics and develop problem solving skills in relation to experimental, bioinformatics, medical and forensic methods in genetics.</td>
</tr>
<tr>
<td>Advanced skills in microbiology LIFE325</td>
<td>1</td>
<td>15</td>
<td>Develops the skills necessary for using databases to solve problems in microbiology. Introduces current scientific methodologies and topical issues within microbiology and develops enhanced presentational skills.</td>
</tr>
<tr>
<td>Advanced skills in physiology LIFE308</td>
<td>2</td>
<td>15</td>
<td>To enhance the essential skills acquired in Levels Four and Five, including both scientific and broader employability skills including presentation skills for both writing and oral formats. To enable students to evaluate the scientific literature and to apply these skills to group discussions, essay writing and other presentation methods.</td>
</tr>
<tr>
<td>Advanced skills in tropical disease biology LIFE357</td>
<td>1</td>
<td>15</td>
<td>Provides training in a set of methodological skills required to undertake human studies.</td>
</tr>
<tr>
<td>Advanced skills in zoology LIFE331</td>
<td>1 and 2</td>
<td>15</td>
<td>Encourages you to synthesise information from different sources within zoology, and to integrate skills and knowledge from across the curriculum.</td>
</tr>
<tr>
<td>Advanced topics in ecology LIFE337</td>
<td>1</td>
<td>15</td>
<td>Describes modern approaches to long-standing ecological issues and introduces current research in the expanding areas of ecology.</td>
</tr>
<tr>
<td>Animal nervous and musculoskeletal disorders LIFE344</td>
<td>2</td>
<td>15</td>
<td>To develop an understanding of how neuro-musculoskeletal cells are involved with animal dysfunction. To improve your current knowledge and understanding of the molecular and biochemical events that result in disordered phenotypes in animals. To develop your ability to apply, critically evaluate and interpret this knowledge and understanding.</td>
</tr>
<tr>
<td>Module title</td>
<td>Semester</td>
<td>Credit</td>
<td>Module description</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>----------</td>
<td>--------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Bacterial disease mechanisms LIFE318</td>
<td>2</td>
<td>15</td>
<td>To explain to students the common themes and diversity of mechanisms used by bacteria to cause disease. To develop in students an understanding of virulence strategies used to achieve infection, including subversion of host immunity, expression of bacterial toxins motility and intracellular survival.</td>
</tr>
<tr>
<td>Becoming human: genomics, development, and evolutionary anthropology LIFE364</td>
<td>2</td>
<td>15</td>
<td>This module aims to develop an understanding of the ancient and modern evolutionary history of the human lineage. Students will be able to appreciate the mechanisms that underlie evolutionary change, with particular reference to examples relating to human evolution.</td>
</tr>
<tr>
<td>Biochemical messengers and signal transduction LIFE304</td>
<td>2</td>
<td>15</td>
<td>Evaluates and describes the latest knowledge and ideas on how cells respond to external signals and how signalling information is transferred within and between cells.</td>
</tr>
<tr>
<td>Biology of veterinary pathogens: lessons for disease control LIFE367</td>
<td>1</td>
<td>15</td>
<td>Provides you with an overview of the major veterinary diseases affecting livestock and small animals in the UK and in developing countries.</td>
</tr>
<tr>
<td>Cardiovascular and respiratory pharmacology LIFE313</td>
<td>1</td>
<td>15</td>
<td>Explores basic and clinical pharmacology of drugs used in cardiovascular and respiratory disease.</td>
</tr>
<tr>
<td>Cell signalling in health and disease LIFE305</td>
<td>1</td>
<td>15</td>
<td>Describes advanced concepts that are fundamental to modern ideas in biophysics and cell signalling from a systems physiology perspective covering both physiology and disease.</td>
</tr>
<tr>
<td>Chemotherapy and cellular pharmacology LIFE312</td>
<td>2</td>
<td>15</td>
<td>Looks at chemotherapy of infectious diseases caused by bacteria, viruses and parasites.</td>
</tr>
<tr>
<td>Chemotherapy of parasitic disease LIFE338</td>
<td>2</td>
<td>15</td>
<td>Develops an understanding of current concepts of antiparasitic chemotherapy, with attention being directed at the major classes of antihelmintics and antiprotozoal drugs.</td>
</tr>
<tr>
<td>Clinical, anatomical and cellular basis of neurological dysfunction LIFE334</td>
<td>2</td>
<td>15</td>
<td>Complements and extends existing knowledge of CNS anatomy and biology to further understand the mechanisms which allow the brain function under normal physiological conditions but which can also lead to disease.</td>
</tr>
<tr>
<td>Conservation biology LIFE326</td>
<td>2</td>
<td>15</td>
<td>Explores patterns of biodiversity and encourages you to critically evaluate the evidence that explains the demise of animal and plant species.</td>
</tr>
<tr>
<td>Current skills and topics in evolutionary biology LIFE324</td>
<td>2</td>
<td>15</td>
<td>To develop in students the skills to construct phylogenetic trees and to use them to infer the evolutionary origins of novel traits, using the latest software packages. To encourage students to explore key concepts in contemporary evolutionary biology.</td>
</tr>
<tr>
<td>Current topics in animal behaviour LIFE322</td>
<td>2</td>
<td>15</td>
<td>Develops an understanding of the use of evolutionary theory to understand animal behaviour.</td>
</tr>
<tr>
<td>Data handling for physiologists LIFE310</td>
<td>2</td>
<td>15</td>
<td>To enhance the key skills acquired in Levels Four and Five, including both scientific and broader employability skills. To develop in students skills in experimental design, data analysis, data interpretation and data presentation and illustrate how these skills are applied to different areas of modern physiology. To develop in students the ability to apply, critically evaluate and interpret this knowledge and understanding, to solve complex problems in physiology.</td>
</tr>
</tbody>
</table>

Please note: modules are illustrative only and subject to change.
## Core and selected optional modules overview Year Three (continued)

<table>
<thead>
<tr>
<th>Module title</th>
<th>Semester</th>
<th>Credit</th>
<th>Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug metabolism and drug response LIFE315</td>
<td>1</td>
<td>15</td>
<td>Looks at drug metabolism, pharmacokinetics, drug response, and pharmacodynamics.</td>
</tr>
<tr>
<td>Evolutionary and comparative anatomy LIFE351</td>
<td>1</td>
<td>15</td>
<td>Provides an overview of the evolutionary and comparative anatomy of the major vertebrate groups.</td>
</tr>
<tr>
<td>Gene expression and development LIFE323</td>
<td>1</td>
<td>15</td>
<td>Provides a systematic knowledge and a critical understanding of how living organisms control their pattern of gene expression.</td>
</tr>
<tr>
<td>Genes and cancer LIFE302</td>
<td>2</td>
<td>15</td>
<td>Develops an understanding of how cancer occurs and the role of oncogenes and tumour suppressor genes in the development of human cancer.</td>
</tr>
<tr>
<td>Genome biology and technology LIFE342</td>
<td>2</td>
<td>15</td>
<td>To enable students to perform an analysis of genome structure and function. To familiarise students with the arguments and the evidence supporting the molecular and evolutionary processes that shape eukaryotic and prokaryotic genomes. To develop in students an understanding of how comparative genomics can provide insights into evolutionary processes as well as biological function of genes.</td>
</tr>
<tr>
<td>Human and clinical genetics LIFE321</td>
<td>1</td>
<td>15</td>
<td>Develops an advanced understanding of modern medical genetics by expanding on fundamental principles introduced at Level Five.</td>
</tr>
<tr>
<td>Human evolution LIFE336</td>
<td>2</td>
<td>15</td>
<td>To develop in students an understanding of the course of human evolution and to enable students to appreciate the adaptive and other evolutionary processes underlying it. Students will develop their knowledge of and deep understanding in human evolution, and the ability to apply, critically evaluate and interpret this knowledge to assemble cogent arguments.</td>
</tr>
<tr>
<td>Integrative comparative animal physiology LIFE339</td>
<td>1</td>
<td>15</td>
<td>Develops an understanding of the physiological mechanisms that underpin adaptations to environmental conditions.</td>
</tr>
<tr>
<td>Life sciences work-based placement LIFE399</td>
<td>1</td>
<td>15</td>
<td>To give students an opportunity to develop their skills during a placement at a commercial, research, voluntary, or similar organisation, reflect on their experiences and progress during the placement, and engage with relevant theory and research in the area of occupational psychology.</td>
</tr>
<tr>
<td>Marine ecology: theory and applications ENVS383</td>
<td>2</td>
<td>15</td>
<td>This module aims to develop the connections between ecological theory and the management of marine communities and ecosystems. The theory covered will mostly be concerned with the dynamics and diversity of communities and ecosystems.</td>
</tr>
<tr>
<td>Microbial diversity and versatility LIFE329</td>
<td>1</td>
<td>15</td>
<td>Explains the diversity of microbial life and its adaptation to environment.</td>
</tr>
<tr>
<td>Molecular and neuropharmacology LIFE317</td>
<td>2</td>
<td>15</td>
<td>Explores the pharmacology of drugs acting on central and peripheral nervous system pathways.</td>
</tr>
<tr>
<td>Module title</td>
<td>Semester</td>
<td>Credit</td>
<td>Module description</td>
</tr>
<tr>
<td>------------------------------------------------------------------</td>
<td>----------</td>
<td>--------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Molecular, clinical and translational cancer LIFE373</td>
<td>1</td>
<td>15</td>
<td>To enable students to develop an understanding of the biological mechanisms underpinning cancer and its treatment. To provide the students with an opportunity to explore and discuss the principles involved in cancer detection, diagnosis and therapy.</td>
</tr>
<tr>
<td>Molecular medicine LIFE306</td>
<td>2</td>
<td>15</td>
<td>Describes the application of molecular and computational approaches in the study and treatment of human disease.</td>
</tr>
<tr>
<td>Molecular toxicology LIFE316</td>
<td>2</td>
<td>15</td>
<td>Looks at molecular and cellular mechanisms involved in toxicology.</td>
</tr>
<tr>
<td>Neuromuscular physiology and disease LIFE311</td>
<td>1</td>
<td>15</td>
<td>Describes the concepts that are fundamental to modern ideas in understanding the physiology of muscles, neurons and related diseases.</td>
</tr>
<tr>
<td>Parasitology LIFE361</td>
<td>1</td>
<td>15</td>
<td>Provides you with knowledge of the major features of the structure and life histories of a range of protozoan and helminth parasites of humans.</td>
</tr>
<tr>
<td>Pharmacology research projects PHAR660</td>
<td>1 and 2</td>
<td>30</td>
<td>The aims of this module are to provide an opportunity to extensively research a specific topic (or topics) and afford insights into contemporary scientific methods and debate. This module will also encourage the development of independent working and critical appraisal skills.</td>
</tr>
<tr>
<td>Principles of molecular physiology research LIFE309</td>
<td>1</td>
<td>15</td>
<td>To introduce current techniques and models used to study molecular and cellular physiology. To review the latest research developments in molecular and cellular physiology and in human diseases, including cancer, obesity, and cystic fibrosis.</td>
</tr>
<tr>
<td>Protein structure, function and organisation LIFE303</td>
<td>1</td>
<td>15</td>
<td>Develops knowledge and understanding on why protein structures are important for function, and how proteins fold into functional conformations.</td>
</tr>
<tr>
<td>Research project LIFE363</td>
<td>1 and 2</td>
<td>30</td>
<td>Provides you with an insight into and experience of the process of scientific research and debate and develops the confidence to work independently and with others, to effectively and efficiently achieve a scientific aim.</td>
</tr>
<tr>
<td>Specialised body systems: development, disease and regeneration LIFE332</td>
<td>2</td>
<td>15</td>
<td>To broaden students’ concepts of regional anatomy to an appreciation of the function of specialised body systems and the investigative approaches taken by scientific enquiry. To introduce the topic of immunology and provide students with information on of the anatomy and function of the immune system in key body systems. To develop in students, knowledge of the development of specialised body systems, how they may malfunction in disease and their potential for regeneration.</td>
</tr>
<tr>
<td>The body in motion: musculoskeletal functioning in health, performance and disease LIFE335</td>
<td>1</td>
<td>15</td>
<td>Provides an introduction to the biology (adaptations, ecology and evolution) of the major biological groups in our own order, that is primates.</td>
</tr>
<tr>
<td>The cardiovascular system in health and disease LIFE330</td>
<td>2</td>
<td>15</td>
<td>Develops an understanding of important current research themes in cardiovascular biology, and show how such research informs understanding of the mechanisms underlying, and the treatment of, certain cardiovascular disorders.</td>
</tr>
<tr>
<td>The dynamic cell: membrane traffic in health and disease LIFE307</td>
<td>1</td>
<td>15</td>
<td>To provide students with current knowledge of mechanisms governing compartmental organisation and significance of the secretory and endocytic pathways in cells and their relevance to medical conditions. To develop in students the skills required to understand and critique the experimental underpinnings of current knowledge in membrane traffic.</td>
</tr>
</tbody>
</table>

Please note: modules are illustrative only and subject to change.

Continued over...
Core and selected optional modules overview Year Three (continued)

<table>
<thead>
<tr>
<th>Module title</th>
<th>Semester</th>
<th>Credit</th>
<th>Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding disease: an integrated approach LIFE375</td>
<td>1</td>
<td>15</td>
<td>To provide students with knowledge of the mechanistic basis of selected diseases, including relevant biochemistry, physiology, pharmacology, cell signalling and pathophysiology. To develop in students an understanding of the basis for current therapies for selected diseases, and to allow students to review and critique novel treatments.</td>
</tr>
<tr>
<td>Vector biology: theory, research and implementation LIFE359</td>
<td>1</td>
<td>15</td>
<td>This module describes current research into vectors and vector-borne diseases and demonstrates how this research answers broad-ranging questions in vector biology and leads to novel vector control strategies. You will develop your knowledge and deep understanding in tropical disease biology, and ability to apply, critically evaluate and interpret this knowledge to solve complex problems.</td>
</tr>
<tr>
<td>Veterinary epidemiology and public health LIFE328</td>
<td>2</td>
<td>15</td>
<td>Develops the ability to use epidemiological and statistical methods for research applications in bioveterinary sciences and animal sciences.</td>
</tr>
<tr>
<td>Viral disease mechanisms LIFE320</td>
<td>2</td>
<td>15</td>
<td>Evaluates the latest research on the role of viruses as important pathogens of humans and animals. Explains in detail, viral virulence mechanisms, immune evasion and vaccine development.</td>
</tr>
<tr>
<td>Zoology field course LIFE333</td>
<td>1</td>
<td>15</td>
<td>Develops proficiency in a range of field techniques, as well as team-working skills such as coordinating responsibility for collecting data using diverse techniques and sampling protocols.</td>
</tr>
</tbody>
</table>

Please note: modules are illustrative only and subject to change.

Core and selected optional modules overview Year Four

<table>
<thead>
<tr>
<th>Module title</th>
<th>Semester</th>
<th>Credit</th>
<th>Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced statistics for biological research LIFE707</td>
<td>1</td>
<td>15</td>
<td>Provides training in statistical analysis of biological data to test hypotheses.</td>
</tr>
<tr>
<td>Advanced topics in animal behaviour LIFE743</td>
<td>2</td>
<td>15</td>
<td>Provides an understanding of the use of evolutionary theory to understanding animal behaviour.</td>
</tr>
<tr>
<td>Module title</td>
<td>Semester</td>
<td>Credit</td>
<td>Module description</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>--------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Advanced topics in bacterial and fungal diversity and versatility LIFE729</td>
<td>1</td>
<td>15</td>
<td>Explains the diversity of microbial life and its adaptation to the environment.</td>
</tr>
<tr>
<td>Advanced topics in biotechnology LIFE722</td>
<td>1</td>
<td>15</td>
<td>Describes the exploitation of microorganisms and microbial processes for biotechnological applications and discusses the economical and ethical aspects of the development of novel products and environmental benefits using biotechnological processes.</td>
</tr>
<tr>
<td>Advanced topics in cell signalling LIFE713</td>
<td>2</td>
<td>15</td>
<td>Illustrates the importance of cellular responses to external signals and how signalling information is transferred within cells.</td>
</tr>
<tr>
<td>Advanced topics in comparative physiology LIFE745</td>
<td>1</td>
<td>15</td>
<td>Provides you with an insight into physiological mechanisms underpinning adaptation to potentially hostile environmental conditions such as anoxia, toxic sulphide, high hydrostatic pressure and extreme temperatures.</td>
</tr>
<tr>
<td>Advanced topics in molecular medicine LIFE715</td>
<td>2</td>
<td>15</td>
<td>Explores the application of molecular genetics and computational biology in the study and treatment of human disease.</td>
</tr>
<tr>
<td>Advanced topics in viral disease mechanisms LIFE720</td>
<td>2</td>
<td>15</td>
<td>Describes the latest research on the role of viruses as important pathogens of humans and animals and explores, in detail, viral virulence mechanisms, immune evasion and vaccine development.</td>
</tr>
<tr>
<td>Cell and molecular biology of cancer BIOL760</td>
<td>2</td>
<td>15</td>
<td>To develop in students an understanding of how cancer occurs and the role of oncogenes and tumour suppressor genes in the development of human cancer.</td>
</tr>
<tr>
<td>Evolution and behaviour LIFE709</td>
<td>1</td>
<td>15</td>
<td>This module aims to introduce students to a set of key concepts and case studies in contemporary evolutionary and behavioural biology so that they can apply key ideas in a critical and evaluative manner.</td>
</tr>
<tr>
<td>Informatics for life sciences LIFE721</td>
<td>1</td>
<td>15</td>
<td>Provides a broad overview of the use of informatics in the biological sciences. This module will give you a theoretical and technical grounding in a range of application areas including bioinformatics-related topics such as sequence analysis, phylogenetics, and the modelling of proteins and higher level subjects such as modelling of pathways, ecosystems and evolution.</td>
</tr>
<tr>
<td>Post-genomic bioinformatics LIFE708</td>
<td>2</td>
<td>15</td>
<td>Introduces the use of bioinformatics to solve real-world research questions.</td>
</tr>
<tr>
<td>Programming for life sciences LIFE733</td>
<td>1</td>
<td>15</td>
<td>This module is aimed at postgraduate students in the life sciences, wishing to learn about methods for use in data-intensive research. The module provides a broad overview of the use of a scripting language for performing basic tasks in biological sciences, with examples demonstrated through the use of Perl. The module will give you practical experience in writing your own Perl scripts for basic bioinformatics tasks, such as manipulating DNA, RNA and protein sequences, file input/output and working with other programs, such as BLAST.</td>
</tr>
<tr>
<td>Research internship LIFE701</td>
<td>1</td>
<td>30</td>
<td>Provides you with an insight into the process of scientific research and debate and exposes you to new research and cultural environments.</td>
</tr>
<tr>
<td>Research methods and applications in biological sciences LIFE731</td>
<td>1 and 2</td>
<td>15</td>
<td>Provides students with an understanding of the processes required for the successful planning and delivery of research projects.</td>
</tr>
</tbody>
</table>

Please note: modules are illustrative only and subject to change.
Find out more
liverpool.ac.uk/study

Accommodation: liverpool.ac.uk/accommodation
Fees and student finance: liverpool.ac.uk/money
Life in Liverpool: liverpool.ac.uk/study/undergraduate/welcome-to-liverpool
Student Welfare Advice and Guidance: liverpool.ac.uk/studentsupport
Undergraduate enquiries and applications: T: +44 (0)151 794 5927

@LivUniLifeSci

Life Sciences
The University of Liverpool
Crown Street
Liverpool L69 7ZB

T: +44 (0)151 795 5111
E: bioteach@liverpool.ac.uk
liverpool.ac.uk/lifesciences

Information provided is correct at time of going to press and is subject to change.