School of Life Sciences

BIOLOGICAL SCIENCES
BIOCHEMISTRY
BIOMEDICAL SCIENCE
MEDICAL MICROBIOLOGY AND VIROLOGY

UNDERGRADUATE STUDY 2016
“I felt very welcome when I visited the School of Life Sciences. I met friendly people and the staff gave insight into their own research – it was very inspiring!”

Alicia P-Neophytou
Biochemistry student
Welcome

We offer you a warm welcome at the School of Life Sciences. We pride ourselves on our excellent teaching, delivered by inspiring teachers and world-class academic researchers. You will be introduced to the key academic principles and techniques that enable the fantastic diversity of life on our planet to be understood. You will also have the opportunity to tailor your degree course to your interests and actively contribute to how we teach.

We develop your future potential right from the start of your degree and provide the basis for employment in a wide range of sectors. Our modules range from the subcellular to the population, from experimental chemistry to theoretical modelling, to those that impact on physiology, disease and the environment. You will learn in a variety of settings; tutorials, lectures, workshops, practicals and private study. Our degrees are flexible and enable you to tailor your choices to your interests.

Warwick recognises the importance of extra curricular activities and provides top class facilities to enable you to make the most of your degree. Our 5* campus sports facilities are used extensively by University clubs and individuals and our Students’ Union offers over 300 sports clubs and student societies. Warwick Arts Centre is one of the largest centres for arts in the UK with a rich programme of world-class theatre, music, visual arts, comedy and film.

Please read our brochure and visit our website to discover the many opportunities awaiting you at Warwick. We look forward to welcoming you to one of our Open Days soon.

Laura Green
Head of School
Research-led Teaching and Learning in the School of Life Sciences

As a Life Sciences student you will benefit from a high number of contact hours with the School’s research staff and close supervision throughout your course. You will learn through a combination of tutorials, lectures, laboratory work, and independent and group research.
Tutorials

You will have weekly (Year 1) or fortnightly (Years 2 and 3) taught tutorials with your personal tutor. These sessions of groups of 6 students ensure that everyone is able to develop, engage and receive regular feedback on their work. In tutorials you will complete a range of assignments including problem sets, essays, question and answer sessions and formal presentations. This regular contact with your personal tutor throughout your course provides one-to-one support for your academic and research work. Your personal tutor stays with you throughout your degree and is your first point of call for any academic queries or concerns.

Laboratories

You will have a significant quantity of high quality laboratory time, providing you with the time to develop your laboratory skills. Labs are designed to follow on from the relevant lectures in order to help you to understand the application of scientific theory in practice.

Final Year Project

You will complete a six-week laboratory or literature-based project in your final year, providing the opportunity to demonstrate independent lab working. You can choose from over 300 general projects and over 100 laboratory-based projects offered by academic staff in a range of diverse research areas. Literature-based topics have included; ‘whether organ donors should get free funerals?’ and ‘the development of a capture-recapture microsatellite system in bats for conservation’. Laboratory-based projects have included; ‘using microarray data to investigate the function of the circadian clock’ and ‘investigating the role of phosphorylation of the protein Tau in Alzheimer’s disease’. You will be closely supported by a member of staff and will carry out your research in internationally renowned research groups.

Interactive Computational Learning Suite

The Interactive Computational Learning Suite, or ‘Orchard’ as students call it, contains 120 Apple iMac computers. The Suite gives you the opportunity to develop a high standard of bioinformatics and computational skills, which will add to your employability.
Ensuring your success

We provide a supportive and stimulating learning environment, which enables you to take advantage of the many opportunities available to you.

“The BioMed Grid is a fantastic learning environment, well equipped for both individual and group work. It contains all the important books for wider reading, as well as equipment such as projectors and interactive whiteboards, ideal for group work and practising presentations. The new ICL Apple Suite is also an excellent resource for analysing data.”

Samuel Davies
Biological Sciences
A year in industrial research
As part of our 4-Year MBio Degrees you can spend your fourth year working on a research project in industry. Recent examples of industrial placements have included GlaxoSmithKline, the Health Protection Agency, AstraZeneca and Unilever. If you wish to take a year out to gain industrial experience in any science-related area we will offer support and guidance to help you.

Senior Tutors
Each year group has a Senior Tutor. As a team, the Senior Tutors are responsible for the welfare of students in the department, which means they are always looking to improve your learning experience.

Quantitative Biology Centre (QuBiC)
All Life Sciences degrees require good quantitative skills. To support students to develop the mathematical and statistical skills required, the School of Life Sciences runs QuBiC, a daily drop-in service for all students to use to support the quantitative content in their degree. QuBiC also offers refresher mathematics workshops on a range of useful topics from rearranging equations to descriptive statistics.

Student Staff Liaison Committee (SSLC)
The Student Staff Liaison Committee is made up of student representatives from all undergraduate courses and members of staff. The committee provides a space for students to discuss anything related to teaching, learning and student support at the University. The SSLC is one of the ways in which students can get involved in the running of the School. Representatives play a key role in collecting and presenting the views of students and in working with academics to respond to student needs.

BioSoc - the University’s Biology Society
A student run society open to all years helping everyone to make the most of their time as a Life Sciences student. BioSoc run weekly Peer Support sessions offering advice and guidance as well as themed workshops focusing on topics relevant to your degree stream. BioSoc offer a range of volunteering opportunities from teaching in schools to charity work. Attending the great social events organised by BioSoc is also a great way to meet new people on your course.

BioMed Grid
To support your study you have full access to the BioMed Grid library. This is an innovative learning environment for biologists, with text books, careers information, Wi-fi, video editing, SMART boards, PCs, plasma screens and presentation rooms.

warwick.ac.uk/library/biomed
School of Life Sciences Graduates

Warwick graduates are highly employable. This is partly due to the high academic content of our degree courses and the University’s reputation, but also because we encourage students from the outset to take responsibility for developing those skills demanded by today’s employers.
What can I do with a Degree in Life Sciences?

Our graduates have careers in a wide range of sectors including:
- Bioscience and Biomedicine
- Biotechnology and Food Industries
- Wildlife Conservation
- Scientific Publishing
- Public Health
- Business
- Accountancy
- Law
- Computing
- Media
- Civil Service

Many of our students go on to postgraduate study doing a Masters or PhD or gaining entry to a graduate medical school programme.

Examples of occupations of our Life Sciences graduates include:
- Biochemist
- Finance and Investment Analyst
- Microbiologist
- Clinical Research Associate
- Pathologist
- Drug Safety Scientist
- Medical Sales Representative
- Laboratory Technologist
- Director of Social Enterprise
- Medical Communications
- Teacher
- Management Consultant

Employers our graduates are now working for include:
- GlaxoSmithKline
- NHS
- Scope Clinical Research
- Teach First
- Johnson & Johnson
- AstraZeneca
- Public Health England
- IS Heath Communications
- Severn Trent Water
- Biomed Central Medical Journals
- Mercian Science
- Deloitte

86% of MBio students graduated with a first in 2015

3rd most targeted University nationally by the UK’s top 100 graduate employers. The Graduate Market in 2015, High Flier

89.6% of all 2013/14 Life Sciences graduates were in work six months after graduation
Degree Courses in the School of Life Sciences

• Biological Sciences BSc (C100) MBio (C1A1)
• Biochemistry BSc (C700) MBio (C1A2)
• Biomedical Science BSc (B900) MBio (C1A3)
• Medical Microbiology and Virology BSc (C520) MBio (C1A4)

Our degree courses are designed to provide choice and flexibility. We recognise that your interest in particular aspects of biology may develop only when you are more familiar with the subject at university level. A core syllabus is offered in the first year for all degree courses providing the essential foundations in biology, biochemistry, genetics and chemistry. Everyone covers the same core modules in the first year meaning that it is often possible to transfer between the different degrees at the end of the first year.

Our four-year integrated Masters (MBio) courses provide an additional year of study focused on a substantial research project, either within the School or in industry (subject to reaching a suitable level of achievement in years 1 to 3). You can apply directly for the MBio courses, or if you are a BSc student and you achieve 2:1 or above in your second year, you can apply for a transfer onto the related Masters course.

All of our four-year integrated Masters (MBio) courses are accredited by the Royal Society of Biology.

Assessment
Each degree is assessed in a variety of ways. Students submit course work in the form of multiple choice tests, essays and poster presentations through the tutorial system. Each lab ends with the writing up of an assessed laboratory report.
This course spans the entire scale of biological systems - from molecules to ecosystems. It offers broad exposure to cutting-edge research in molecular, cellular and whole organism biology, while describing applications of science to major global challenges such as environmental management, food security, biotechnology and human health. The exceptionally wide range of options within the Biological Sciences degree allows you to choose the modules that are best suited to your interests and career ambitions.

**Year 1 Modules:**
Molecules, Cells and Organisms, Animal and Plant Biology, Agents of Infectious Disease, Physiology and Metabolism, Environmental Biology and Quantitative Skills for Biology. (Chemistry for Biologists is compulsory for entrants without A2 level Chemistry).

**Year 2 Modules:**
Molecular Cell Biology, Multicellular Systems, Genetics and Evolution, Ecology and Environment, plus one option from the following: Bioscience and Society, Immunology, Protein Structure and Function, Clinical Microbiology, Ecology and its Applications, Pharmacology and Viruses and Disease.

**Year 3 Modules:**
Research Project, Dynamics of Biological Systems plus options such as Advanced Immunology, Protein Targeting, Oncology, Biological Clocks, Integrative Neuroscience, Exploiting Innovation in Biology, Environmental Science and Management, Principles of Development, Bioenergy and Biorefining, Extreme Environmental Biology, Bacteria: Genes to Behaviour, Science Communication and Business Studies modules.

**Year 4 Modules (for MBio students):**
Extended Research Project (6 months if based in the department or one year as an industrial placement). Research Skills, training in advanced laboratory techniques, data handling and statistical analyses, critical analysis of the literature and designing research proposals.

**Philippa Hirst**
Biological Sciences

I have always loved biology and this course offers a broad range of topics across all the biological disciplines. The course also has options to specialise by choosing modules in areas that you enjoy.
Following an in depth foundation in biochemistry, the course broadens out to allow you to focus on more specialist fields. These include biophysical chemistry, which enables the descriptions of biological macromolecules at the atomic level, and understanding the genome and gene regulation.

By the third year, optional modules provide you with the opportunity to pursue areas that you find particularly interesting.

Students leave Warwick with a solid background in the biochemical and structural basis of molecular, cellular and developmental processes in a variety of organisms ranging from bacteria to animals.

**Biochemistry BSc (C700) MBio (C1A2)**

**Year 1 Modules:**
Molecules, Cells and Organisms, Agents of Infectious Disease, Physiology and Metabolism, Physical Chemistry, Quantitative Skills for Biology and Organic Chemistry.

**Year 2 Modules:**
Molecular Cell Biology, Tools for Biochemical Discovery, Protein Biochemistry, Signalling and Integration, plus options such as Bioscience and Society, Neurobiology, Immunology, Evolution, Ecology and its Applications and Genetics and Genomics.

**Year 3 Modules:**
Research Project, Protein Targeting, Structural Molecular Biology, Principles of Development, Dynamics of Biological Systems, plus options such as Advanced Immunology, Oncology, Biological Clocks, Integrative Neuroscience, Bioenergy and Biorefining, Extreme Environmental Biology, Science Communication and Business Modules.

**Year 4 Modules (for MBio students):**
Extended Research Project (6 months if based in the department or one year as an industrial placement). Research Skills, training in advanced laboratory techniques, data handling and statistical analyses, critical analysis of the literature and designing research proposals.
Biomedical Science BSc (B900) MBio (C1A3)

Biomedical Science involves the study of life processes in humans and provides an understanding of the causes and consequences of human disease, including infection, cancer and neurological decay. The application of new biological concepts in medicine is an ever-growing and exciting process. Developments in molecular, genetic and cell biological research continue to drive progress in areas ranging from vaccine development to neurodegenerative diseases and metabolic diseases such as diabetes. Drawing on a spectrum of modules, you will come to understand the nature and extent of human disease problems, both locally and globally.

Year 1 Modules:
Molecules, Cells and Organisms, Agents of Infectious Disease, Physiology and Metabolism, Quantitative Skills for Biology plus at least one option from Animal Anatomy and Histology, Health and Community and Environmental Biology. (Chemistry for Biologists is compulsory for entrants without A2 level Chemistry).

Year 2 Modules:
Human and Animal Physiology, Molecular Cell Biology, Immunology and Epidemiology, Infection, plus one option from the following: Bioscience and Society, Clinical Microbiology, Viruses and Disease, Evolution, Genetics and Genomics, Molecular Endocrinology and Pharmacology.

Year 3 Modules:
Research Project, Modern Approaches to Human Disease, Pathogenicity and Pathogenesis of Infection, plus options such as Advanced Immunology, Protein Targeting, Oncology, Integrative Neuroscience, Dynamics of Biological Systems, Principles of Development, Extreme Environmental Biology, Medical Virology, Science Communication and Business Modules.

Year 4 Modules (for MBio students):
Extended Research Project (6 months if based in the department or one year as an industrial placement). Research Skills, training in advanced laboratory techniques, data handling and statistical analyses, critical analysis of the literature and designing research proposals.

Megan Buckley
Biomedical Sciences

I really enjoyed biology at school, especially human-related topics. The combination of taught modules with labs and tutorials was very appealing.
Microbes are largely responsible for creating the atmosphere and recycling nutrients. They are essential for life on Earth, yet microbes are also the cause of most death and disease globally. Bacteria are found in almost every habitat on earth including polar ice caps, hot water springs, ocean depths and the upper atmosphere, as well as on and inside humans, animals and plants. Viruses such as HIV and influenza are major agents of human disease while other viruses play a role in cancer. The Medical Microbiology and Virology (MMV) course reflects the diversity of microbial form and function to give you a broad understanding of the roles of microbes in life processes.

**Year 1 Modules:**
Molecules, Cells and Organisms, Agents of Infectious Disease, Physiology and Metabolism, Quantitative Skills for Biology plus at least one option from Animal Anatomy and Histology, Health and Community and Environmental Biology. (Chemistry for Biologists is compulsory for entrants without A2 level Chemistry).

**Year 2 Modules:**
Molecular Cell Biology, Immunology and Epidemiology, Viruses and Viral Infections, Medical Microbiology, plus one option from the following: Bioscience and Society, Evolution, Protein Structure and Function, Pharmacology, Biological Oceanography, Ecology and its Applications and Genetics and Genomics.

**Year 3 Modules:**
Research Project, Advanced Immunology, Bacteria: Genes to Behaviour, Pathogenicity and Pathogenesis of Infection, Medical Virology, plus options such as: Advanced Immunology, Protein Targeting, Oncology, Dynamics of Biological Systems, Exploiting Innovation in Biology, Bioenergy and Biorefining, Extreme Environment Biology, Science Communication and Business Modules.

**Year 4 Modules (for MBio students):**
Extended Research Project (6 months if based in the department or one year as an industrial placement). Research Skills, training in advanced laboratory techniques, data handling and statistical analyses, critical analysis of the literature and designing research proposals.
How to Apply

Applications are made through UCAS. The UCAS code for Warwick is WARWK W20.

ucas.com

We strongly encourage you to visit the University to see campus for yourself and to get a sense of the student experience at Warwick. You can find details of our main University Open Days online.

warwick.ac.uk/opendays

Once you have applied you will be invited to an Offer Holders Day and will be given the opportunity to talk to academic staff and current students and have a look around the School of Life Sciences and the University. You will also take part in a sample tutorial in order to get a feel of what it might be like to study here.

Successful applicants will be made an offer as soon as possible after their application is received. The offer will be conditional on already having or obtaining the required entry qualifications. If you accept this offer and achieve the required grades in your examinations then your place at the University of Warwick will be confirmed and we will look forward to seeing you at the start of your undergraduate life.

warwick.ac.uk/study/undergraduate/apply

Overseas applicants

The University of Warwick welcomes applications from international students.

Local advice about the application procedure is available from all British Council offices and Warwick representatives.

warwick.ac.uk/study/international
Research in the School of Life Sciences

In our state-of-the-art laboratories and facilities we conduct a broad spectrum of interdisciplinary research that extends from the molecular, through the cellular to the organism level and spans bacteria, viruses, fungi, animals and plants. Our research has applications for many important areas in society and is of relevance to key employment sectors for the future Life Scientist.

Biomedical Science
Our research on biomedical science focuses on understanding the fundamental processes underlying cellular function, growth, differentiation and ageing, and how disruption of these processes affects human health. Our studies integrate basic biological research with computational modelling in areas ranging from medical microbiology and virology, through to biochemistry and neuroscience.

Environmental Bioscience
Our environmental bioscience research focuses on both biodiversity and climate change. Researchers in the School are studying microbial communities in the sea and soil that have important roles in the carbon, nitrogen and sulphur cycles. Studies also cover the ecology and evolution of individual species and complex communities, including survival and adaptation in response to environmental change.

Biotechnology
Biotechnology is at the heart of modern biological science research, and uses living systems and organisms for human gain, ranging from production of pharmaceuticals and fertilisers through to food products and biodegradable materials. We use synthetic biology approaches that combine experimental techniques with engineering principles to redesign existing biological systems or create new ones from scratch.

Infection
Infectious disease causes death and suffering for billions of people, and impacts on agriculture and ecosystems through affecting the health of plants and animals. We conduct research at all levels of organisation, from the structure of molecules through cellular processes to populations, in order to understand how to control disease more effectively and generate capacity to respond to new threats such as disease epidemics and antimicrobial resistance.
Plant and Crop Science
Limited resources, population increase and climate change threaten the ability of the world to feed its population. The School carries out a range of world-leading studies aimed at ensuring sustainable food production. We use cutting-edge techniques to investigate plant genetics and diversity, nutrient availability and plant-pathogen interactions, and systems biology approaches to give deeper insights into living processes.

WISB to drive biotechnology, medicine and food security
Warwick integrative Synthetic Biology centre (WISB) has received a £12m grant to develop advanced technologies in synthetic biology. We’ll provide a research, training and outreach programme in synthetic biology, unique in the UK. Our researchers will help drive advances in pharmaceuticals, high-value and commodity chemicals, environmental bioremediation, and food security.

The Undergraduate Research Support Scheme
This scheme offers opportunities for undergraduates to gain an insight into research work and to develop valuable transferable skills. Bursaries are available through the scheme, which enables students to gain experience in our research labs.
warwick.ac.uk/urss

Reinvention
Reinvention: A Journal of Undergraduate Research is an online, peer-reviewed journal, dedicated to the publication of high-quality undergraduate student research. The journal is edited jointly by students from Warwick and Monash University in Australia.
warwick.ac.uk/iatl/ejournal
Useful Information

Student fees and funding
The University wants to ensure that, wherever possible, financial circumstances do not become a barrier to studying at Warwick. We provide extra financial support for qualifying students from lower income families.

Warwick.ac.uk/study/undergraduate/studentfunding
Warwickfinancefunding

Accommodation
Warwick Accommodation has over 6,400 rooms for the 2015/16 academic year across a range of residences. All rooms are self-catering. Each of the campus residences is fully managed and has an excellent network of support staff in the Residential Life Team:

Warwick.ac.uk/accommodation
WarwickAccomm

Helping you find the right career
As a Warwick student, you have access to far more than academic qualifications. The Centre for Careers and Skills offers a number of well-established programmes and sessions to assist your personal development. Through the Centre you will have access to specialist Life Sciences careers advice and opportunities to speak with graduate recruiters.

Warwick.ac.uk/services/scs
WarwickCareersCentre

Warwick Students’ Union
One of the largest and most active students’ unions in the country, Warwick SU is the focal point of campus life here at Warwick.

Warwicksu.com
Warwicksu

Welfare and support
The University has a comprehensive welfare structure in place to ensure that you can easily access advice and guidance throughout your time here.

Warwick.ac.uk/services/student-support-services
@warwickSupport
Contact details
For further information about our undergraduate courses please contact:

Educational Support Services Team
School of Life Sciences
Gibbet Hill Campus
University of Warwick
Coventry CV4 7AL UK

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sls.ug@warwick.ac.uk
@WarwickLifeSci
warwick.ac.uk/uglifesci

Disclaimer
The information in this brochure is correct at the time of publishing but may be subject to change. For the most up-to-date course information visit our website.