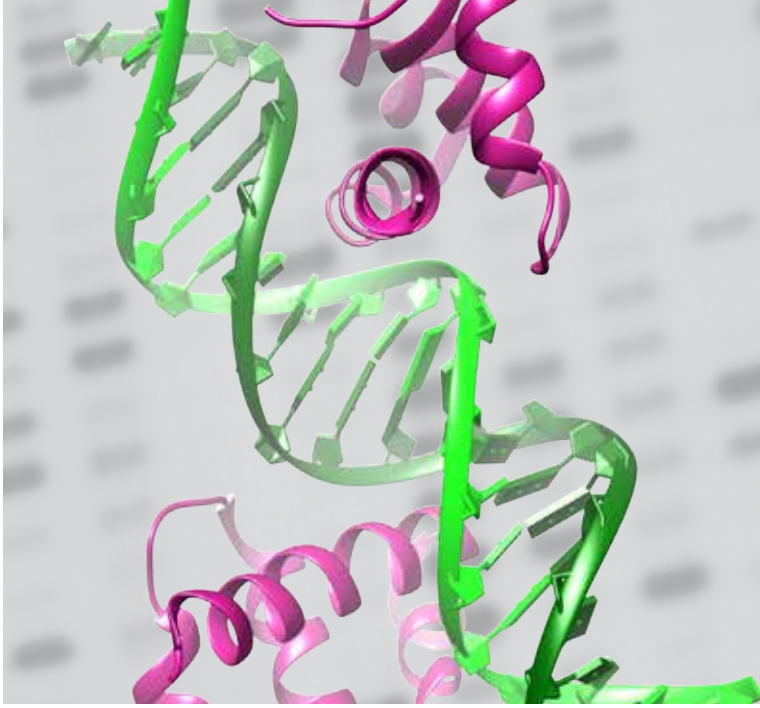
UNIVERSITY OF BIRMINGHAM

SCHOOL OF BIOSCIENCES



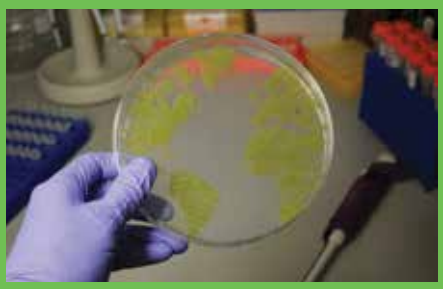
BIOCHEMISTRY, BIOLOGICAL SCIENCES AND HUMAN BIOLOGY

Introduction

As one of the top biosciences schools in the UK, our teaching covers the entire spectrum of cutting-edge biosciences – from molecules and cells to whole organisms and ecosystems. We are a close-knit community, which is vibrant and welcoming, and we put great emphasis on ensuring our students feel involved in their learning and very much at home here.

Our flexible and diverse programmes are delivered by academic staff who are experts in their fields, offering distinct degrees in Biochemistry, Biological Sciences and Human Biology, with specialist degree titles available in Genetics, Medical Biochemistry and Zoology. Our four-year options offer the opportunity to study abroad, gain professional experience during a placement year or take an undergraduate Masters qualification.

We take a highly personalised approach to teaching and learning where the student voice is heard. Our graduates are highly regarded among employers in the UK. We are ranked fifth in the Russell Group for undergraduate prospects in the *Complete University Guide 2019.*



THE LEARNING ENVIRONMENT

We know that learning works differently for different people so a mix of laboratory practicals, workshops, lectures and tutor groups form the core of the teaching sessions. Our spacious state-of-the-art teaching laboratories are the training ground for your skills development, and you will have access to high-technology facilities during your final-year project.

You will study on one of the most attractive and heritage-rich campuses in the country. Situated in leafy Edgbaston, the University is only minutes from the centre of Birmingham, with its wealth of culture, nightlife, shops and other attractions. Our campus includes major hospitals, world-leading clinical trials facilities, and the Institute of Translational Medicine. Across the University, we deliver outstanding education programmes in the Life Sciences to over 10,000 students each year, creating the next generation of scientists and health professionals.

FLEXIBLE DEGREES

Choice is a key word here at Birmingham. We understand that you might not be entirely sure where and when to specialise – let alone what career to pursue – so we enable you to experiment and change direction. The shared content in the first year provides some flexibility to transfer between our Biosciences courses if you wish (subject to prior study and at specified points during the year). You will also choose one module from outside the School (Widening Horizons Module), with the aim of helping you to expand your knowledge, interests and career ideas.

You then have a choice of optional modules in the second and final years, which allows you to specialise in an area that interests you, or to try content from a variety of areas.

OPENING A HOST OF DOORS

Our increasingly popular four-year courses give you the chance to study abroad, gain work experience or graduate with a Masters degree, which can give you the edge in today's competitive careers market. Whether you choose a three- or four-year degree course, employers think very highly of our students.

Our programmes are accredited by the Royal Society of Biology as containing a solid academic foundation in biological knowledge and key skills, and preparing graduates to meet the needs of employers.

CONTENTS

Image credit: European Mobile Lab

PIONEERING GLOBAL RESEARCH

Our research is cutting-edge – from how viral infections such as Zika spread in developing countries to exploring the way forests adapt to environmental change – and you can be part of it. Ranging from human, animal and plant to microbial, cell and molecular biology, our internationally leading research informs our curriculum, and current research findings will be referenced right from your first year. Our lecturers are passionate about their subjects and just as passionate about passing on their knowledge and skills to you.

For more information, please visit **www.birmingham.ac.uk/biosciences**

Where will your degree take you?

Our graduates have skills that enable them to embark on a diverse range of successful professional careers in the life sciences and beyond.

The life sciences form a sizeable segment of the UK employment market with some 5,000 companies active in the industry. A Biosciences degree from the University of Birmingham is an excellent qualification for your future career. In fact, our Biosciences degrees are ranked fifth in the Russell Group for graduate prospects in the *Complete University Guide 2019.*

Emerging knowledge in areas such as genetics, molecular biology and ecology affects human society and the environment all over the planet. In studying biosciences, you are given the opportunity to develop the skills to advance human knowledge and understanding, allowing you to make a contribution in environments as varied as a laboratory, zoo, classroom, TV studio, or in industry.

Studying biosciences opens the doors to a diverse range of careers in research institutions, pharmaceutical and biotechnology companies, graduate entry to medicine or dentistry, physiotherapy, teaching, science communication, and a host of non-science careers.

We recognise the importance of preparation for the world of work during your time here and encourage you to enhance your studies with internships, volunteering projects and entrepreneurial endeavours. Our four-year MSci Professional Placement programmes in particular, give you the opportunity to undertake work experience, which is a valuable addition to your CV and professional skill set.

Internships and work experience

There are numerous opportunities to take advantage of internships and work experience placements that will enhance your professional and personal skills. These opportunities cover a diverse range of professions and aspirations, from travelling abroad, to assisting on conservation projects and gaining crucial experience with UK organisations. Career development is integrated into the tutorial programme, and our Careers Network offers specialist advice on developing your CV to make you stand out from the crowd.

- Our impressive employability record speaks for itself with 95% of our graduates employed or in further study within six months of graduating
- The Royal Society of Biology has accredited our programmes, which highlights their academic excellence and professional relevance and applicability to the workplace
- We are ranked fifth in the Russell Group for graduate prospects in the *Complete University Guide 2019*

EXAMPLE EMPLOYERS	CAREER ROUTES
GLAXOSMITHKLINE	ANIMAL HEALTH CONSULTANT
CANCER RESEARCH UK	TEACHER
NHS	ENVIRONMENTAL CONSULTANT
DEFRA	HEALTHCARE SCIENTIST
HEALTH PROTECTION AGENCY	MEDICAL WRITER
SYNGENTA	RESEARCH EXECUTIVE
EVOTEC	SCIENCE COACH
WELLCOME TRUST	NHS SCIENTIST TRAINING PROGRAMME
KPMG	BIOLOGY TECHNICIAN
CADBURY-KRAFT	PLANT HEALTH ENTOMOLOGIST
NIKON	HOSPITAL SALES SPECIALIST
FUTURE SCIENCE GROUP	POSTGRADUATE STUDIES
OXFORD NANOPORE TECHNOLOGIES	
THE LANCET	
DIAMOND LIGHT SOURCE	

'My time at Birmingham provided me with the understanding of biological and ecological principles that I use in my work as an ecologist, and a range of skills that I use day-to-day from species identification and ecological survey techniques, to research and project management skills, which have become increasingly relevant as my role has developed.'

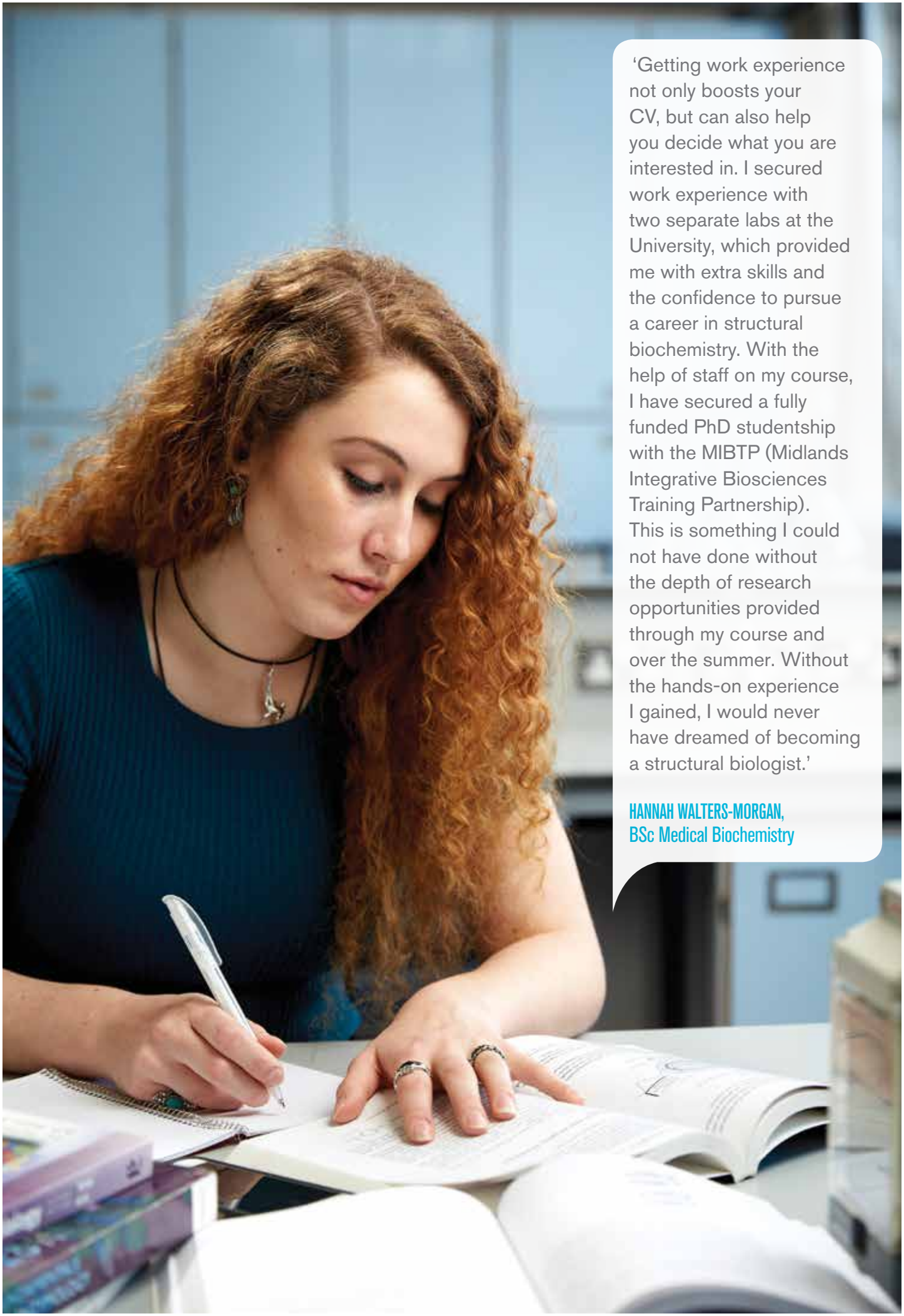
JOANNE MAKIN, MSci Biological Sciences graduate, Assistant Ecologist with The Landscape Partnership

LAURA EDMUNDS, BSc Human Biology graduate, Trainee Andrologist

'I had always aspired to work in reproductive biology and going to university allowed me to get my dream job. It gave me the opportunity to learn more about the field and also to organise work experience within different fertility clinics to enhance my CV. I had a great tutor who was very supportive throughout my studies and provided me with the link to the fertility clinic where I am currently training as an andrologist. Studying Human Biology gave me a great overview of many aspects of the subject area, and having such a wide range of modules allowed me to explore many career options associated with the field. I was offered my job before graduation and have been working for this company ever since. Following graduation, I registered to train as an andrologist on the Association of Biomedical Andrologists (ABA) modular course.

'I aspire to become fully qualified in this area, and in the future I would also like to explore fertility further and train as an embryologist. Without university, this would not have been possible and I still feel very lucky that it has given me the opportunity to work in such an amazing field.'

For more information on careers, please visit **www.birmingham.ac.uk/bio-careers**



‘Getting work experience not only boosts your CV, but can also help you decide what you are interested in. I secured work experience with two separate labs at the University, which provided me with extra skills and the confidence to pursue a career in structural biochemistry. With the help of staff on my course, I have secured a fully funded PhD studentship with the MIBTP (Midlands Integrative Biosciences Training Partnership). This is something I could not have done without the depth of research opportunities provided through my course and over the summer. Without the hands-on experience I gained, I would never have dreamed of becoming a structural biologist.’

HANNAH WALTERS-MORGAN,
BSc Medical Biochemistry

STUDENT EMPLOYABILITY 95%

CAREERS

TAILORED CAREERS SUPPORT FROM CAREERS NETWORK

We provide a wealth of opportunities to develop your career. From your first day at Birmingham to after you graduate, Careers Network is here to help you identify and achieve your individual career aspirations through its wide range of services.

Careers Network has a strong professional relationship with colleagues in the School and delivers a range of activities including career planning workshops and employer and alumni sessions focusing on key industry sectors of interest.

The dedicated careers team brings you information, advice and guidance tailored to your specific needs. Careers advisers offer one-to-one advice appointments where you can discuss your career plans and explore your options.

Our multi-award-winning work experience team has dedicated internship officers to help find the right work experience for you. Make the most of these opportunities and apply for our Work Experience Bursary Scheme, the Global Challenge Internship Programme or one of our successful mentoring schemes.

Our application advisers deliver a range of workshops and individual support to help you create the perfect CV and covering letter, improve your interview skills and use social media such as LinkedIn more effectively.

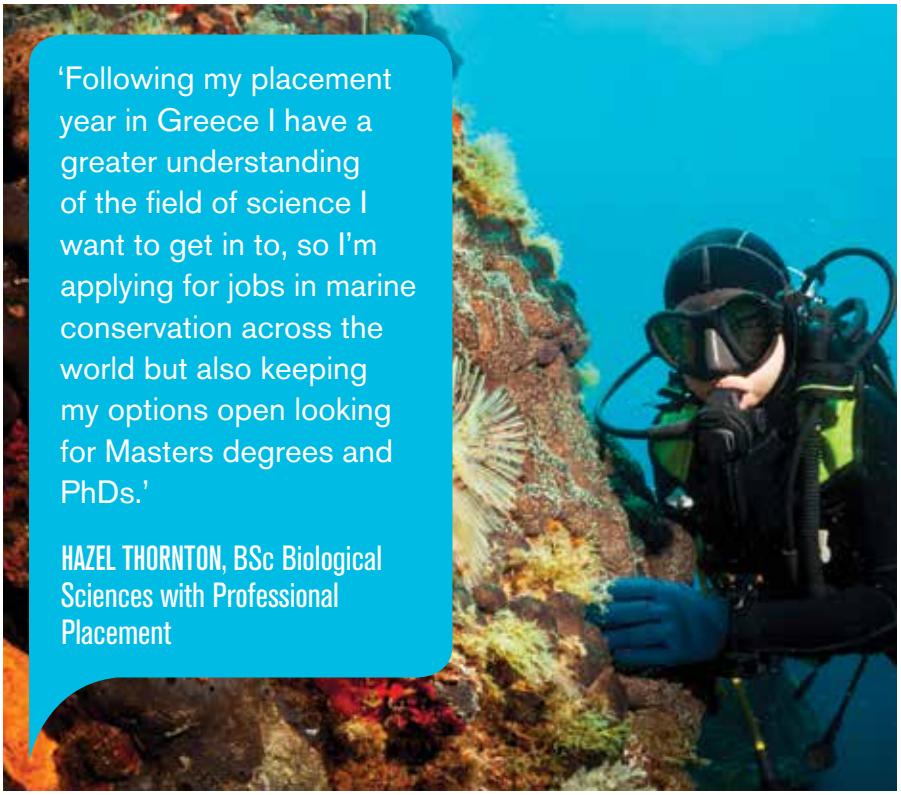
You can access tailored careers information at our 'Careers Hubs' or via our dedicated careers virtual learning resource.

FACT

- *Careers Outside the Lab* is the annual Biosciences careers conference, which offers you the opportunity to hear from alumni, employers, research students and current students who have undertaken internships, with networking opportunities.
- The annual *Greener Prospects* event provides students with insights into environmental, ecological and sustainability careers, through presentations and networking opportunities with a wide range of employers.

Transferable skills

The wide range of skills that you will develop while studying for a Biosciences degree also equips you for careers outside science. Many Biosciences graduates use their degree as a stepping stone to careers as diverse as management, marketing, finance, patents, teaching, law, journalism and publishing.



'Following my placement year in Greece I have a greater understanding of the field of science I want to get in to, so I'm applying for jobs in marine conservation across the world but also keeping my options open looking for Masters degrees and PhDs.'

HAZEL THORNTON, BSc Biological Sciences with Professional Placement

PREPARING FOR RESEARCH

An increasing number of our students choose to study a four-year MSci programme, which offers an additional year of advanced research training, in addition to the BSc course. This is ideal preparation if you are considering pursuing PhD-level research in the future.

Our graduates are highly sought after by universities around the world; some will choose other universities for postgraduate study whilst many stay in Birmingham and join one of our prestigious research groups. Many PhD studentships are fully funded, receiving a tax-free stipend.

Employability data source: 2015–16 Destinations of Leavers of Higher Education (DLHE) survey

For more information on careers, please visit **www.birmingham.ac.uk/bio-careers**

Our areas of study

Life remains one of the big unanswered questions of science. How does life emerge? How does life adapt to changes in the environment? Our courses allow you to explore organisms and environments; cells and molecules; humans, plants and animals; the choice is yours. If your ambition is to get to the heart of what makes human beings and other organisms physically tick, a degree in Biosciences is the way to go.

BIOCHEMISTRY

Biochemistry is the science of how life works at the molecular level. From metabolism to genetics, cellular signalling and brain function, life unfolds through a myriad of chemical reactions, yet often follows surprisingly simple principles.

You will explore this fascinating world in a structured first year, which includes a pure Chemistry module. In the second and third years, you will be given an increasing level of choice to allow you to follow your curiosity. This includes the opportunity to study for specialist degree titles in Genetics and Medical Biochemistry.

www.birmingham.ac.uk/biochem

BIOLOGICAL SCIENCES

Biological Sciences encompasses the study of life in all its forms, from simple single-cell organisms, to mammals and their interaction with the environment.

Key first-year modules include animal, plant and environmental biology, with the opportunity to undertake field trips in your second year. You can also choose specialist degree titles in Genetics or Zoology, depending on your choice of optional modules. Our course gives you the choice of exploring the full breadth of biology or to increasingly focus on a particular area. Be prepared for the many unexpected facets of living organisms.

www.birmingham.ac.uk/bio-sci

HUMAN BIOLOGY

From Darwin to Dawkins, this course will furnish you with a comprehensive view of what it means to be human, integrating the study of classical evolution, anatomy and physiology with cell biology and molecular genetics.

The course also looks at our evolutionary neighbours, and it will enable an understanding that transcends traditional disciplinary boundaries. Last but not least, you will learn about how disease conditions can be understood in a framework of cell and molecular biology, and how this leads to exciting prospects in personalised medicine.

The first year will give you a broad view of human biology, including areas such as human biochemistry. A mix of core and elective modules feature in the second year and in the final year you will combine a research project with a wide choice of elective modules on specialist topics including cancer, immunology, genetics, neurobiology and collective behaviour.

www.birmingham.ac.uk/human-bio

RESEARCH THEMES

The School's research focuses on four major themes, which inform and influence the curriculum and delivery of all of our undergraduate programmes.

BIFoR and environmental sciences: Research into the interactions between animals and their environments. The Birmingham Institute of Forest Research (BIFoR), one of the University's unique research facilities, is investigating the long-term impact of climate on woodlands.

Microbiology and infection: Our pioneering research is tackling the global challenge of antimicrobial resistance, unravelling the specialist ways microbes cause disease and using genomics to track microbial outbreaks such as the recent Ebola crisis.

Cells and molecules: Exploring the fundamental mechanisms of biology underpinning health, to find therapeutic solutions to injury and disease such as cell damage, cancer, cardiovascular disease, brain diseases and infertility.

Plant science and food security: Our mission is to play a leading role in mitigating the global food security crisis through the conservation of agriculturally significant species and use of a diverse range of modern molecular genetics and genomics approaches.

www.birmingham.ac.uk/biosciences/research

For more information on courses, please visit **www.birmingham.ac.uk/bio-degrees**

‘The fact that Birmingham is research-led really struck a chord with me; having meaningful research being carried out by the individuals who teach us really adds deeper meaning and value to their lectures. For me, a real highlight has been the opportunity to learn from and directly engage with the academic staff here, all of whom are true experts in their fields. The knowledge they impart to us is always up to date and often backed up by their own research.’

JOSHUA RABONE, BSc Biochemistry

Biochemistry

Royal Society of Biology
Accredited Degree

This is where chemistry, biology and medicine meet. Biochemistry seeks to explain the link between what living organisms do and their molecular make-up. It plays a key role in developing new medicines, diagnosing diseases quickly, making plants resistant to pests and disease, and solving environmental problems.

Advances in biosciences have a profound impact on our daily lives, today and in the future. Drug development, food security, environmental remediation and personalised medicine are not just buzzwords, but areas where biochemistry expertise is critical and urgently needed. Exploring the molecular world that underpins life is fascinating in its own right, and opens the door to many professions.

In the first and second years, the course features chemistry modules taught by the School of Chemistry, and this knowledge feeds into your study of cell biology, physiology and genetics. In physical biochemistry and metabolism, we go to the very core of what makes living organisms tick.

Some of the themes in our second-year modules include membranes, energy transduction and gene cloning, which can be combined with your choice of optional modules, for instance on the molecular mechanisms of disease.

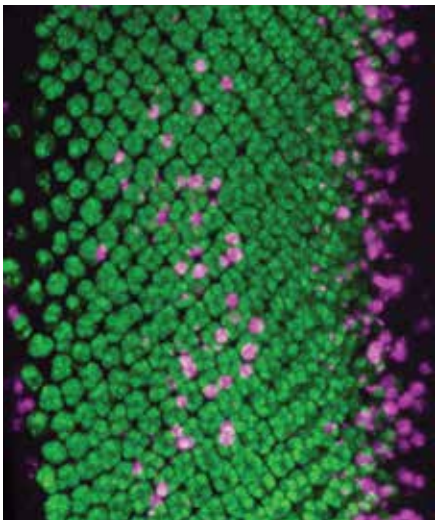
As part of your final-year project, you will have the chance to contribute to ongoing research in the School, which could see you working in one of our high-technology facilities, such as analysing metabolites using mass spectrometry in the Phenome Centre.

Alongside the core final-year module on biochemical data analysis and experimental design, you can select from a broad choice of in-depth modules. Whether you delve into cancer biology, eukaryotic gene regulation or the structural biology of pathogenic organisms, what you learn will be inspired by our own research at the forefront of biochemistry.

FLEXIBILITY

Our courses focus firmly on the molecular and cellular aspects of living organisms. Because you won't have studied Biochemistry at A level, your first year will be spent getting a broad, solid grounding in the subject. This will include learning about cell biology and physiology, genetics, and enzymes and metabolism. You can then select from a range of second- and third-year modules to reflect your particular interests.

You have the choice of keeping your studies broad or using your module choices to obtain a specialist degree title in Genetics or Medical Biochemistry. Either way, a broad spectrum of final-year modules is available to you.



For more information on Biochemistry, please visit **www.birmingham.ac.uk/biochem**

Biochemistry

RESEARCH-LED TEACHING

At Birmingham, research and teaching go hand-in-hand. Lecturers and professors contribute to scholarship in their fields and, as academic teachers, are keen to introduce you to what intrigues them.

From discovering the mechanisms underlying metabolism in healthy ageing to aiding the future of drug design, our research has the potential to both enhance and save lives. Antimicrobial resistance, brain development, and finding new ways to cure blood cancers are just some of our major research topics.

Our research informs and inspires our teaching, so you will benefit from the cutting-edge work of some of the world's leading biochemists. In fact, sometimes our past experiments form the basis of our practical teaching sessions. You will also have the exciting opportunity to join one of our research groups, working on live research projects during your final year.

ACADEMICS FROM THE SCHOOL OF CHEMISTRY TEACH CHEMISTRY MODULES ON OUR PROGRAMMES IN YEARS 1 AND 2.

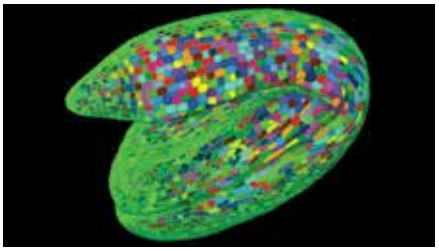
FOUR-YEAR COURSES

If you want to develop your knowledge and skills further, and give yourself an advantage in the careers market, you might be interested in our four-year courses:

- MSci Biochemistry
- MSci Biochemistry with Professional Placement, which includes a year-long research project in a non-academic organisation, including industry, NGOs or the NHS
- BSc Biochemistry with a Year in Europe, which will include a year studying at one of our partner universities in France, Germany or Spain
- BSc Biochemistry with an International Year, which provides the opportunity to study for a year at a university outside Europe, such as Australia, Singapore and the US

JENNIFER THORLEY, BSc Biochemistry graduate, Senior Editor for *The Lancet Gastroenterology & Hepatology*

'After graduating, I went on to do a PhD in hepatitis C virology and cell biology, working between the Medical School and School of Biosciences at Birmingham. After completing my PhD, I moved to London to work in scientific publishing, first as a copy editor at Nature Publishing Group and then as an assistant editor at *The Lancet*. I recently became Senior Editor for *The Lancet Gastroenterology & Hepatology*, a new journal launching this year. Studying biochemistry gave me a broad understanding of a range of biological subjects, which has been invaluable in my jobs at *Nature* and *The Lancet*.'



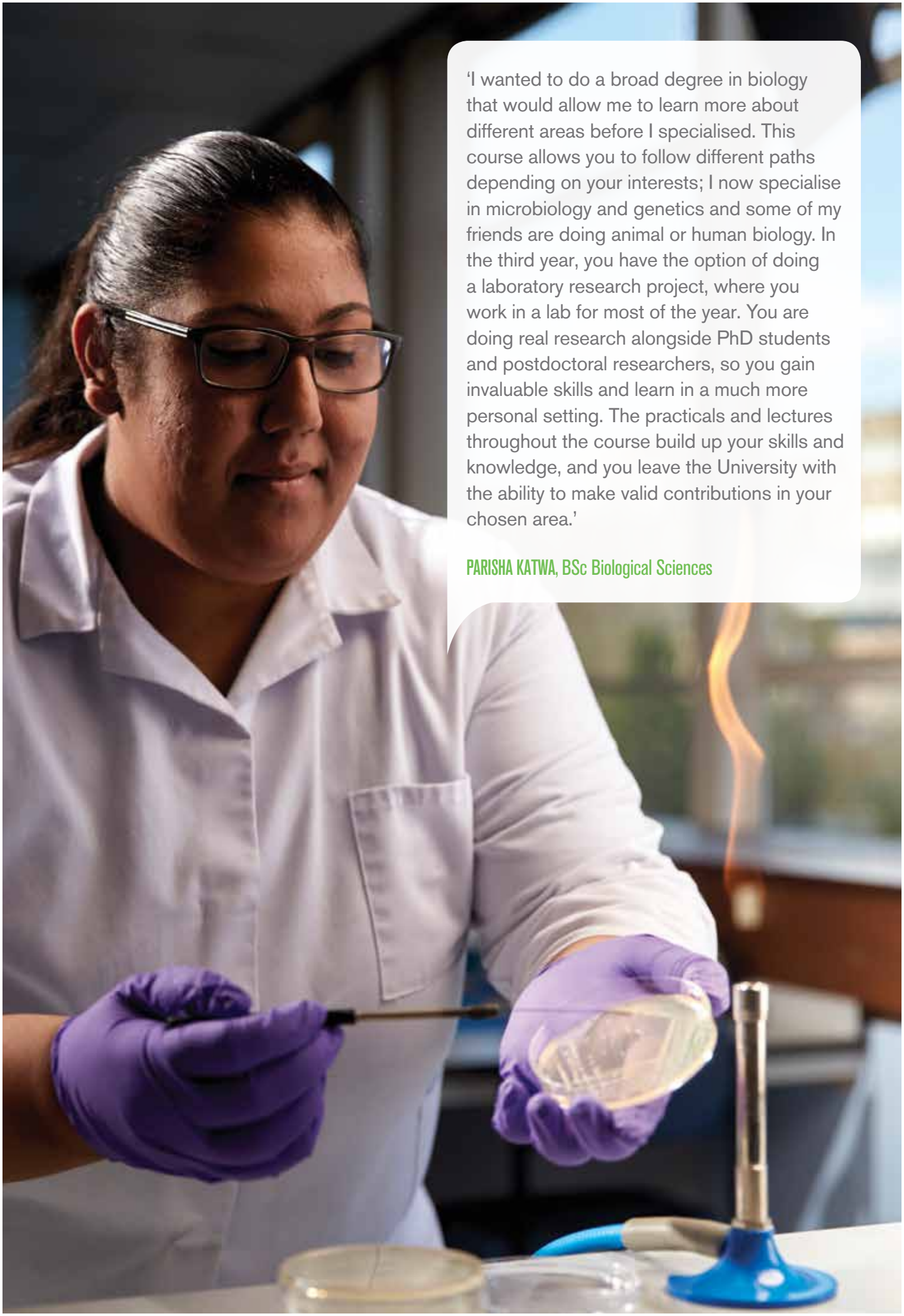
SPECIALIST DEGREES IN GENETICS OR MEDICAL BIOCHEMISTRY

- The Biochemistry course gives you the flexibility to study for specialist degree titles in Genetics or Medical Biochemistry
- Choosing particular second-year and final-year modules will determine whether you qualify for these degrees
- In the second year you can then decide whether you prefer the broader Biochemistry course, which gives you complete freedom in choosing your elective modules, or whether you wish to focus more narrowly on modules relevant to Genetics or Medical Biochemistry

'My four-year course allows for further development of lab, communication, presentation and other key skills, which are important for a variety of working environments. I get to conduct my own research in an area that inspires me, and acquire skills that couldn't be developed on a three-year course.'

KATHERINE WOOD, MSci Biochemistry

For more information on Biochemistry, please visit **www.birmingham.ac.uk/biochem**



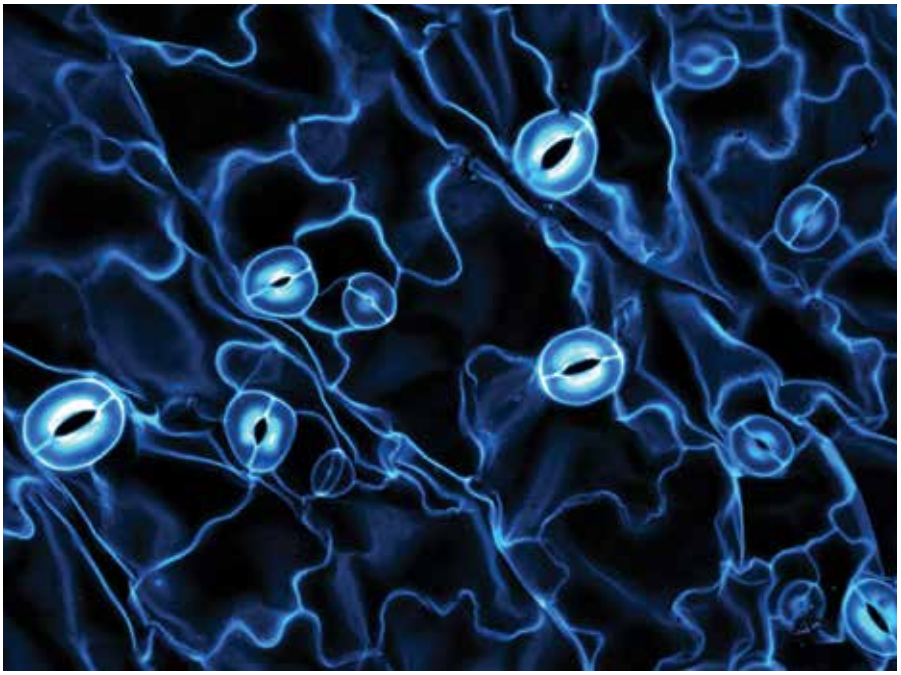
‘I wanted to do a broad degree in biology that would allow me to learn more about different areas before I specialised. This course allows you to follow different paths depending on your interests; I now specialise in microbiology and genetics and some of my friends are doing animal or human biology. In the third year, you have the option of doing a laboratory research project, where you work in a lab for most of the year. You are doing real research alongside PhD students and postdoctoral researchers, so you gain invaluable skills and learn in a much more personal setting. The practicals and lectures throughout the course build up your skills and knowledge, and you leave the University with the ability to make valid contributions in your chosen area.’

PARISHA KATWA, BSc Biological Sciences

Biological Sciences

Royal Society of Biology
Accredited Degree

Biology, the study of life, is a diverse discipline relevant to all areas of modern life. Recent advances in biology are shaping our understanding of issues ranging from human health to predicting the effects of environmental factors, such as global warming.



FACT

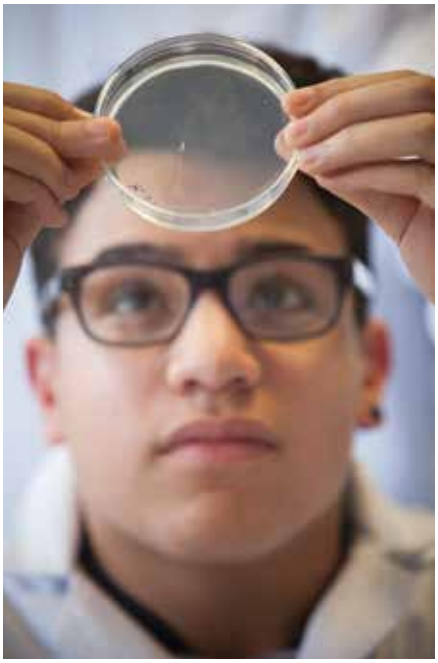
Students sometimes ask 'What was discovered at Birmingham?' The work of Sir Peter Medawar is a standout example. While he was Mason Professor of Zoology at the University more than half a century ago, Sir Peter pioneered skin grafting experiments that won him the Nobel Prize in 1960. His research was vital to the practice of tissue and organ transplants. Indeed, Sir Peter is now regarded as the 'father of transplantation'. Today, this remarkable biologist's legacy lives on at the University: Birmingham has one of the largest organ transplantation units in Europe and also houses the National Institute for Health Research Surgical Reconstruction and Microbiology Research Centre (NIHR SRMRC) at the Queen Elizabeth Hospital.

Because we are a large school, we have expertise in most areas of biological sciences and can offer a great breadth of topics spanning the four levels of the biological hierarchy of molecules, cells, organisms and ecosystems. A number of our students opt to specialise in either Genetics or Zoology, but there's no pressure to choose early on; you can take your time deciding which direction you want to go in. And if you don't want to specialise at all – you might want to go into teaching, for example – then that's fine, too; you can choose to keep your studies broad.

FLEXIBILITY

Flexibility is another of our key strengths. In your first year, you will learn the core material – all the things we think you need to know as a modern-day biologist – but after that, it's largely up to you! With advice and support from your tutor, you will be able to decide what aspects of biological sciences interest you most and plot your degree course accordingly.

The path you take might be influenced by the career you wish to pursue, but one of the advantages of a Biological Sciences degree is that it gives you lots of scope, and opens lots of doors. The combination of the knowledge and skills you will acquire over three or four years here will equip you for a wide range of professional options, from ecology and conservation to accountancy and economics, and you will be able to work with your tutor and Careers Network to ensure the options you choose are the right ones for you.



For more information on Biological Sciences, please visit **www.birmingham.ac.uk/bio-sci**

Biological Sciences

RESEARCH-LED TEACHING

Research leads our teaching, which means you will benefit from the cutting-edge work being done by some of the world's most eminent biologists.

The Birmingham Institute of Forest Research (BIFoR) recently launched a unique ten-year ecological experiment in a mature Shropshire woodland, exploring how future climate change will impact forest ecosystems.

This experiment will feature prominently in a new second-year module called 'Critical Issues for 21st Century Ecosystems'. Students taking this module will have the chance to interpret and analyse data collected in the study. Working alongside facility staff, our students will learn hands-on how our forests may react to the combined threat of climate change and invasive pests.

Another area in which we particularly excel is microbiology – the study of viruses, parasites, fungi and bacteria. With one of the largest groupings of microbiologists in the world, our Institute for Microbiology and Infection (IMI) is at the vanguard of innovative research into combatting antimicrobial and antibiotic resistance. At the other end of the biosciences spectrum, a group of our academics are conducting research into enriching the environments of captive animals, focusing on improving the primate enclosures at Twycross Zoo. Across the spectrum of biological sciences, research activity from zoology to microbiology informs and shapes the content of final-year modules and ensures that the curriculum remains current.

FIELDWORK

Fieldwork is something many biologists enjoy, and you can make it part of your degree programme if you wish. Two optional field courses are offered in Year 2 – Studying Alpine and Glacial Ecology at a field station in Norway or Adaptations to Aquatic Environments on the Pembrokeshire coast in Wales.

Both deliver similarly enriching experiences: living and working in a group, and the development of skills such as data collection and analysis that are highly relevant to careers linked to climate change, land use and conservation.

Field-based research projects can also be incorporated into your final-year studies, with fieldwork either in the UK or abroad carried out during the summer vacation forming the basis of your final-year project.

There is a fee to participate in field courses, but they are subsidised by the School and are great value for money, as well as an excellent opportunity to experience field research. Field courses are optional.

FOUR-YEAR COURSES

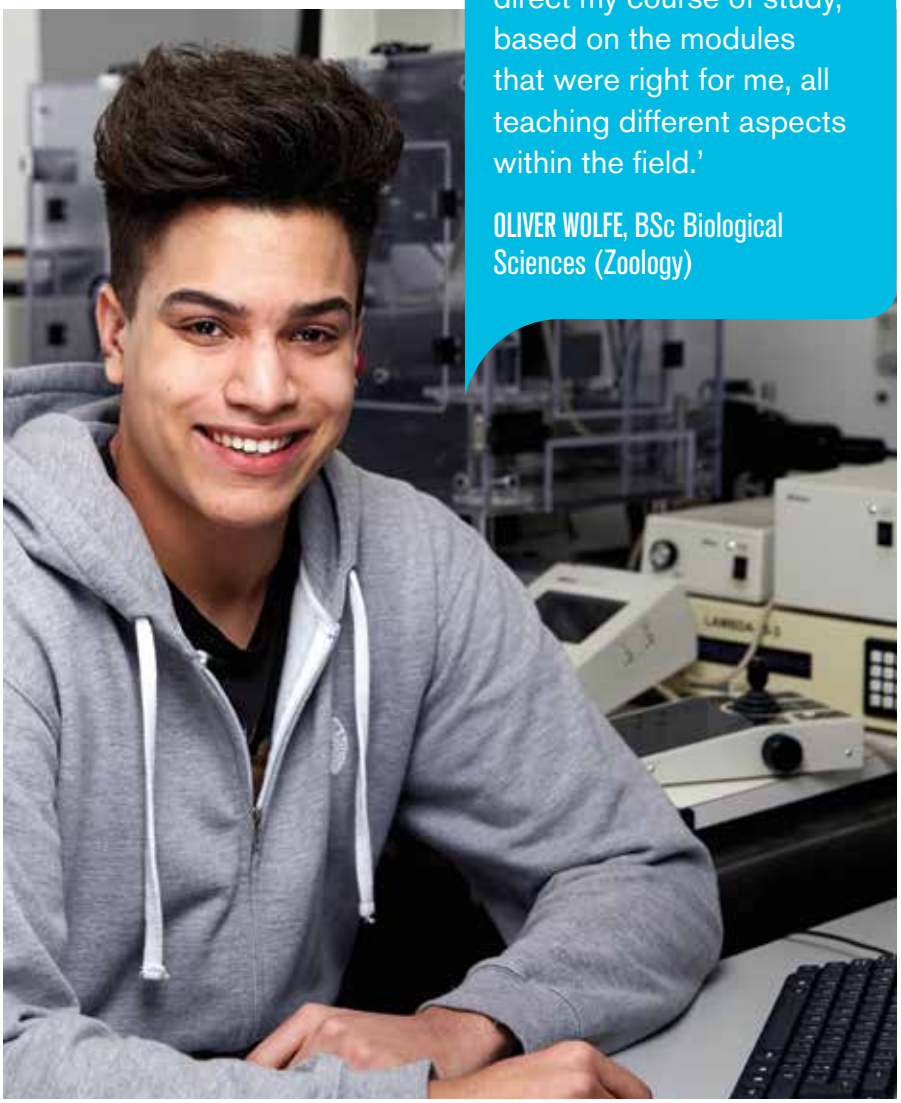
If you want to develop your knowledge and skills further, and give yourself an advantage in the careers market, you might be interested in our four-year courses:

- MSci Biological Sciences
- MSci Biological Sciences with Professional Placement, which is centred on a year-long project in industry or a non-profit organisation
- Biological Sciences with Study in Continental Europe, which will include a year studying at one of our partner universities in France, Germany or Spain
- Biological Sciences with an International Year, which allows you to study for a year at a university outside Europe, such as Australia, Singapore or the US

93%
SAY THE COURSE IS INTELLECTUALLY STIMULATING

‘The course allows you to follow many directions such as zoology, environmental biology, genetics, cell biology, microbiology and human biology too. My personal interest has always been in animal biology/ zoology and I have had plenty of opportunities to direct my course of study, based on the modules that were right for me, all teaching different aspects within the field.’

OLIVER WOLFE, BSc Biological Sciences (Zoology)



SPECIALIST DEGREES IN GENETICS OR ZOOLOGY

The Biological Sciences course gives you the flexibility to study for specialist degree titles in Genetics or Zoology.

Choosing particular second-year and final-year modules will determine whether you qualify for these degrees.

You can wait until your second year to decide whether you prefer the broader Biological Sciences course, which gives you complete freedom in choosing your elective modules, or whether you wish to focus more narrowly on modules relevant to Genetics or Zoology.

‘I applied for the Genetics speciality and chose genetic and molecular modules in my second and third years. I was keen to select the modules that I enjoyed without being restricted, and a lot of other universities did not offer this flexible approach. Being able to graduate with the speciality label of genetics helped me to obtain my internship and Masters places. I obtained an internship at the West Midlands Regional Genetics Laboratory and was then offered a permanent job based between the Extraction and Sequencing hubs. I am now studying for a Masters in Genetic Counselling at Cardiff University and then hope to work as a Genetic Counsellor for the NHS, or a genetic charity such as Unique.’

BETHANY BURNS, BSc Biological Sciences (Genetics) graduate

Course stimulation data source: NSS 2017

For more information on Biological Sciences, please visit **www.birmingham.ac.uk/bio-sci**

‘The beauty of a biology degree is there are so many paths to follow as it’s such a broad subject. This course offers a lot of choice compared to other universities, there are so many modules you select yourself so you can really tailor your degree to you. There are so many different ways of learning involved, not just lectures — there are workshops, labs, online quizzes, sessions in computer clusters, as well as interactive quizzes in lectures. I am always doing something different so it keeps me engaged.’

PHOEBE GLASS, BSc Human Biology

Human Biology

Royal Society of Biology
Accredited Degree

The more we learn about our own species, the more fascinated with ourselves we become! From the workings of the brain to the ethics of human cloning, the complex biology of Homo sapiens continues to enthral and challenge us.

Human biology is vital to the continued development of the fields of medicine, sport science, nutrition, fertility and many other areas that affect our lives. Furthermore, human biologists help to inform global debate on moral and ethical issues, such as how to achieve sustainable world development and ways of reducing mankind's impact on the ecosystem.

Recent exciting advances such as the human genome sequence or the culturing of pluripotent stem cells have given human biology fascinating new perspectives and promise new avenues to treat complex diseases. Over the next decade, we will see the impact of these developments in our daily lives, especially in areas such as medicine and health – none of which would be possible without human biology.

Unique to Human Biology at Birmingham are our modules in human anatomy and evolution, which look at anatomy from an evolutionary perspective not only in relation to Homo sapiens, but also in comparison to non-human organisms. Areas of study include the evolution of cognition and locomotion.

Whether your interests lie in the medically focused areas of human biology or the evolutionary or behavioural aspects of the subject, you can study them all here.

From genetics to embryonic development to mechanisms of disease, studying human biology is as exciting as it is multi-faceted. As a degree course, it provides a platform from which you can embark on a host of different careers, in the life sciences and beyond.

For more information on Human Biology, please visit **www.birmingham.ac.uk/human-bio**

Human Biology

FLEXIBILITY

Your studies will focus on the aspects of biology most relevant to our own species: genetics, physiology, cell biology, evolution and development. This flexible programme gives you a broad understanding of biological principles and equally lets you pursue your own interests to fulfil your career aspirations.

In your first year, you will be taught all the core areas, so that you get a broad and balanced view of modern biology. Year 2 combines core modules with elective ones, with areas of study including anatomy, evolution, animal biology, metabolism and microbes.

In Year 3 you can design your own syllabus, along with your research project – either lab-based or focused on human biology research literature – you can choose the modules that most interest you, from diverse areas including human evolution, cancer biology, cellular signalling and microbiology.

DID YOU KNOW?

Did you know that you have about 37.2 trillion cells in your body? However, estimates vary greatly – from 15 trillion based on volume to 70 trillion based on weight. And this does not even take into account the number of bacteria in the human gut!

NATIONAL STUDENT SURVEY 2017

100%

OF OUR STUDENTS WOULD RECOMMEND STUDYING HERE

FACT

Clinical anatomist, author and broadcaster Alice Roberts – the University's Professor of Public Engagement in Science since 2012 – is a renowned researcher into osteoarchaeology; the study of human remains from ancient sites, and palaeopathology; the study of disease in ancient human remains. Alice, who regularly appears as a science presenter on TV programmes including *Coast*, *Time Team*, *Origins of Us* and *Prehistoric Autopsy*, brings her work to the lecture theatre, where she teaches on the evolution of the human species.

'My first degree in Human Biology at the University of Birmingham offered me the opportunity to identify human molecular reproduction as an area of biology I wished to research in more detail. I subsequently undertook a PhD in intracellular calcium signalling in sperm at Birmingham. After which I applied for the NHS graduate management programme that gave me the experience I needed for my current position as Strategy Advisor for the Strategy Group at NHS England. I currently work on the Test Beds programme, a Five Year Forward View project which aims to test combinations of innovations to improve patient outcomes.

In addition to my role, I am currently enrolled on the Healthcare Leadership Masters at Birmingham, which is supporting me to further develop in my career. All my courses have benefited me greatly in different ways, and over the years my ties with the University have grown stronger. Living in Birmingham was amazing – I loved it so much I keep coming back!'

JENNIFER MORRIS, BSc Human Biology graduate, Strategy Advisor for the Strategy Group at NHS England

‘I chose this course at Birmingham because it enabled me to specialise in the areas of biology that I am interested in right from the first year, which was not the case at most universities. As a result, I have studied human biochemistry, rather than plant science, which since I am interested in pursuing a career in hospital labs, was much more suited to my interests. The practical sessions and high contact hours were also a draw.’

RHIANNON MOSS, BSc Human Biology

FOUR-YEAR COURSES

If you want to develop your knowledge and skills further, and give yourself an advantage in the careers market, you might be interested in our four-year courses:

- MSci in Human Biology
- MSci in Human Biology with Professional Placement, which is centred on a year-long project in industry or a non-profit organisation
- BSc Human Biology with an International year, which provides the opportunity to study for a year at a university outside Europe, such as Australia, Singapore or the US

‘I studied Human Biology and it benefited me immensely as I now teach these concepts to my class of A level pupils. Employers look favourably at graduates from Birmingham, and it opened doors to opportunities in my life that perhaps I would not have been suitable for had I not gone down this path.’

ABBAS RASHID, BSc Human Biology graduate, Head of Year and Teacher of Science

For more information on Human Biology, please visit **www.birmingham.ac.uk/human-bio**

Overseas opportunities

Studying or working abroad is a great way to expand your horizons, and to demonstrate initiative and independence. We offer a wealth of international opportunities that will enhance your learning, skills and experience in a global environment.

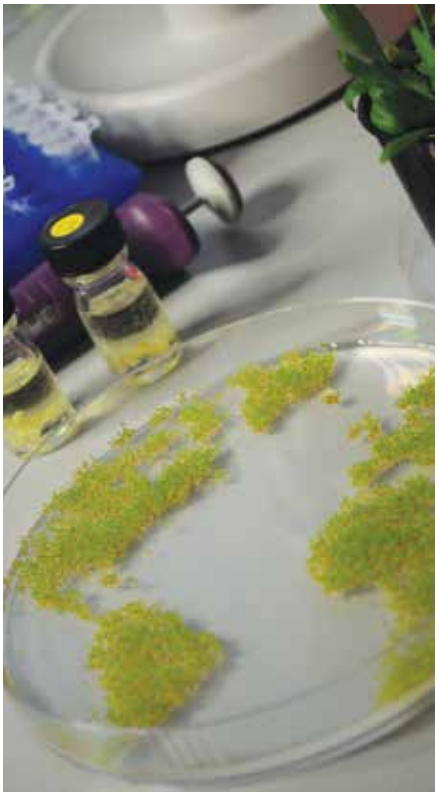
Gaining experience overseas demonstrates ambition, confidence and a willingness to embrace the unknown. In an increasingly globalised economy, these attributes are more and more prized by employers.

The University's funded work experience scheme offers financial support to undertake work experience overseas in the summer vacation. The International Work Experience bursary is available to students who source their own work experience opportunities and require funding to assist with the costs involved.

The Study Abroad and Exchanges team is available to offer advice to students who wish to travel abroad including guidance on the application process.

All of our three-year programmes include the option to add a year abroad. You might choose the BSc with an International Year studying at one of our many partner institutions across the world, where you will be able to work and study in the medium of English. Recent destinations for our Biosciences students have included Singapore, Australia and Canada, to name but a few. Alternatively if you wish to combine study for a Biochemistry or Biological Sciences degree with training in a modern language, the BSc Study in Continental Europe programme offers the opportunity to study at one of our partner universities in France, Germany or Spain. You will also benefit from academic tutors dedicated to the Year in Continental Europe and International Year programmes.

You can also apply to attend annual summer schools through the Universitas 21 network of leading global research universities, of which Birmingham is a founding member. These attract the best students from across the world to engage in an exchange of culture, experiences and intellectual ideas.



‘I spent one year of my Biochemistry degree at the Free University in Berlin as an Erasmus student. Having the flexibility to learn a language alongside my degree was fantastic and my year in Germany was one of the best of my life – Berlin is an incredible city!

‘After graduating and completing a Masters in Science Journalism, I worked as a news reporter for *Research Europe*. Experiencing being a student at a German university helped my understanding of the wider German research environment, and it was great to have this context when writing about German policy issues for the magazine. I now work for *Research Fortnight,* which focuses on UK issues.’

LINDSAY MCKENZIE, BSc Biochemistry with Study in Continental Europe graduate

‘I’ve kept great friends from my time in Lyon and have spent a lot of time visiting them all over the world since I did my year abroad. I still remember it as one of the best parts of my university experience.’

JANET SAUNDERS,
BSc Biochemistry with a Year in Continental Europe graduate, spent a year at the National Institute of Applied Sciences of Lyon in France

For more information on study abroad, please visit **www.birmingham.ac.uk/bio-abroad**

The learning environment

We put our students at the heart of the learning process and you will find our staff engage in and appreciate the dialogue with students. Studying for a degree in the life sciences will be exciting and at times challenging, and we are here to support you throughout your journey.

From hi-tech laboratories and fieldwork opportunities to innovative teaching and a distinctive personal tutor system, our flexible teaching programme is designed to give you a cutting-edge, research-led experience that excites your mind, inspires your enthusiasm and prepares you for the global employment market.

Personal tutor system

Our personal tutor system is the bedrock of our learning environment, and you will normally keep the same academic tutor throughout your course. This means you can build a special rapport with this member of staff and they will get to know you well – which is important when you need advice or support.

The School operates a network of tutor groups, with a maximum of six students per tutorial. During your first and second years, you will see your tutor – who is also responsible for pastoral care – in tutorials every second week.

There is also an overall tutor for each year, and a welfare tutor for the whole School with links to a wide range of on-campus support services.

The learning process

We aim to make the learning process transparent and to involve students in the planning, we even challenge you to draft examples of exam questions! Because we understand that people learn in different ways, we make the learning environment as diverse and enhancing as possible. Your studies will be a mixture of lectures, practical classes, tutorials, e-learning, projects, dissertations and field courses. This diversity of teaching styles will enable you to become more of an independent learner.

We also have a core of staff who are dedicated to teaching, which then allows other staff more time to pursue research work.

‘Boredom is near impossible when you’re living here, there’s always something to see, somewhere to go or something to do. You have the best of both at Birmingham: a tranquil campus with 6,000 trees, beautiful architecture and a nice, homely suburban feel, then an exciting bustling city with good food, lovely sights and great nightlife – all just a five-minute train ride away!’

AJ MILLER, BSc Biological Sciences

‘I was blown away when we toured the Biosciences building on the open day. It was (and still is!) absolutely vast and equipped with impressive lecture theatres and a multitude of state-of-the-art laboratories. It was the first time I thought “this place could make a scientist out of me”.’

ALEXANDER BAMPTON,
Human Biology student, and winner of The Guild’s Outstanding Student Representative Award

Life at Birmingham

Both the city and our beautiful campus are brimming with life and culture, making it a fantastic place to live and study.

School of Biosciences

We are one of the largest biosciences schools in the UK, and there's a great atmosphere and sense of community among our 900 undergraduate students and 60 academic staff. Because we are a large school, we put great emphasis on maintaining a friendly, personal approach and really want you to feel at home here.

Cutting-edge facilities

A key feature of the learning environment is our four major teaching laboratories. There are also learning clusters and new teaching and learning spaces being incorporated into existing lecture theatres with a focus on enhancing interactive learning.

Collaborative Teaching Laboratory (CTL)

The University has begun work on a Collaborative Teaching Laboratory (CTL) facility, which will bring together practical teaching activities across a broad range of science and engineering disciplines. The new build plans incorporate a wet lab, dry lab and e-lab, to be located between the Murray Learning Centre and the Biosciences Building. The CTL is due to be completed by 2019.

BioSoc

BioSoc is a student-run society who organise events and activities for Biosciences students throughout the year, including nights out, trips in the UK and Europe, sports competitions, the Easter Ball and much more. These events are a great way to meet the people on your course, especially during the first few weeks when you arrive.

A SPORTS CENTRE FOR ALL

Our new £55 million Sport & Fitness Club boasts a wide range of state-of-the-art facilities, including Birmingham's first 50m swimming pool.

A LIBRARY FOR THE 21ST CENTURY

Our new £60 million University library provides outstanding facilities, including a variety of physical and digital learning spaces for a new generation of students and researchers.

Artist's impression of the Collaborative Teaching Laboratory (CTL)

For more information on Birmingham, please visit **www.birmingham.ac.uk/undergraduate/birmingham**

How to apply

We attract high-quality candidates from a wide variety of backgrounds. We look for enthusiasm, an appetite for learning and a willingness to explore the unknown.

How do I apply?

You should apply through the Universities and Colleges Admissions Service (UCAS). The School Admissions Team is happy to provide help and advice should you wish to discuss your qualifications or find out more about the programmes before completing your UCAS form. Please find their contact details below.

When should I apply?

Demand for places is high and we advise all applicants to apply early. The deadline for applications through UCAS is in January for entry in September.

International Baccalaureate Diploma

Our standard offer is Higher Level with no less than 32 points overall. For specific HL scores and subjects, visit the course pages at www.birmingham.ac.uk/biosciences/areasofstudy

International students

Applications are welcomed from overseas students with qualifications equivalent to our standard entry requirements. For further information, visit: www.birmingham.ac.uk/international/students/entry-requirements.aspx

Applicants returning to education

We welcome applications from people who have been out of education for some time and who may not meet the standard programme entry requirements. We encourage such applicants to contact us to discuss the suitability of your qualifications and experience.

Optional modules

The optional modules listed on the website for our programmes may occasionally be subject to change. As you will appreciate, key members of staff may leave the University and this necessitates a review of the modules that are offered. Where the module is no longer available we will let you know as soon as we can and help you make other choices.

Fees and funding

For comprehensive information on fees and funding, please visit: www.birmingham.ac.uk/undergraduate/fees/index.aspx

Offer Holder Visit Days

Should you apply to Birmingham and be made an offer you will be invited to join us at an Offer Holder Visit Day (OHVD). You will be able to visit the School and its facilities, talk to current students and staff, experience student life (through taster lectures and practical sessions), tour student accommodation and the rest of our stunning campus. The OHVD is an ideal opportunity to ask questions about all aspects of the programmes and will give you a clear idea of what Birmingham has to offer.

LEARN MORE

General admissions enquiries:
Tel: +44 (0)121 414 5476
Email: biosciences-admissions@bham.ac.uk
Admissions Tutor: Dr Eleanor Cull

Programme	UCAS code	Duration	Typical offer	Subject requirements
Biochemistry				
Biochemistry BSc	C700	3	AAB	A level Chemistry and a second science at A level (Biology, Human Biology, Mathematics (or Further Mathematics or Statistics), Physics)
Biochemistry (Genetics) BSc	CC74	3	AAB	
Medical Biochemistry BSc	C720	3	AAB	
Biochemistry MSci	C703	4	AAA	
Biochemistry with International Year BSc	C007	4	AAA	
Biochemistry with Professional Placement MSci	C702	4	AAA	
Biochemistry with Study in Continental Europe BSc	C701	4	AAB	
Biological Sciences				
Biological Sciences BSc	C100	3	AAB	A level Biology/Human Biology and a second science (Chemistry, Mathematics (or Further Mathematics or Statistics), Physics, Geography, Geology, Psychology)
Biological Sciences (Genetics) BSc	C400	3	AAB	
Biological Sciences (Zoology) BSc	C300	3	AAB	
Biological Sciences MSci	C105	4	AAA	
Biological Sciences with International Year BSc	C001	4	AAA	
Biological Sciences with Professional Placement MSci	C102	4	AAA	
Biological Sciences with Study in Continental Europe BSc	C101	4	AAB	
Human Biology				
Human Biology BSc	C103	3	AAB	A level Biology/Human Biology and a second science at A level (Chemistry, Mathematics (or Further Mathematics or Statistics), Physics, Geography, Geology, Psychology). For applicants without AS (minimum grade C) or A2 Chemistry, grade 6/B GCSE Chemistry or double award science is required.
Human Biology MSci	C106	4	AAA	
Human Biology with International Year BSc	C301	4	AAA	
Human Biology with Professional Placement MSci	C104	4	AAA	

All programmes require a minimum of five GCSEs to include Mathematics, English and double award science at grade 4/C (unless stipulated otherwise in table above). For Study in Continental Europe programmes, GCSE grade 6/B in a relevant foreign language is required.

For more information, please visit **www.ucas.com**

This leaflet was written several months in advance of the start of the academic year. It is intended to provide prospective students with a general picture of the programmes and courses offered by the School. Please note that not all programmes or all courses are offered every year. Also, because our research is constantly exploring new areas and directions of study some courses may be discontinued and new ones offered in their place.

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