

Becoming a **Biologist**

**DEGREES & CAREERS
IN BIOLOGY**



www.societyofbiology.org/education/careers

Why study biology?

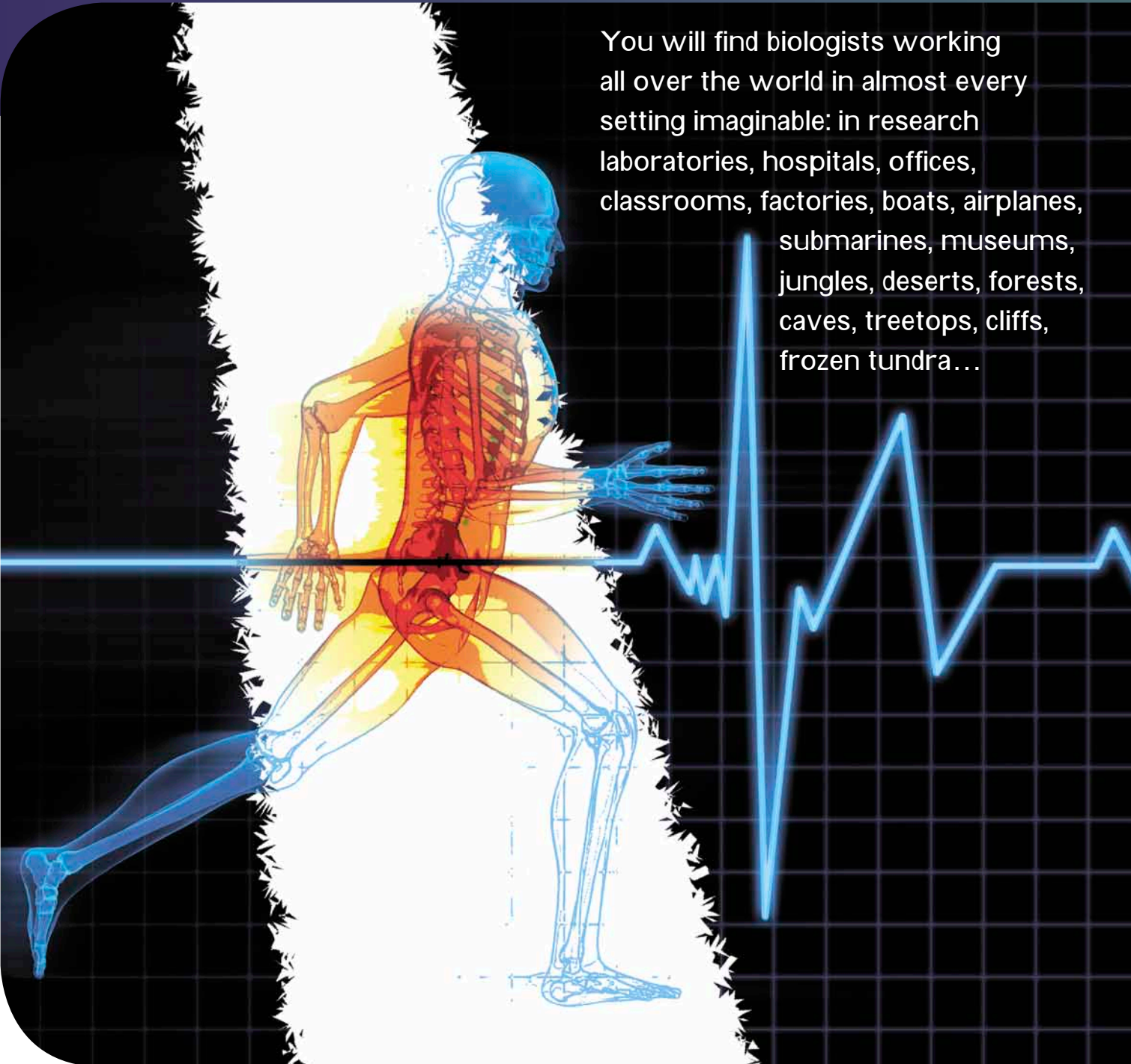
From treetops to ocean trenches, ecosystems to organ systems and dinosaurs to DNA- **BIOLOGY IS THE STUDY OF LIFE.**

Whether you are an indoor or outdoor type, a solo performer or a team player, interested in plants, animals or people, there are options for everyone with an interest in biology.

IT'S AN EXCITING TIME TO BE A BIOLOGIST. Biologists are working to solve the biggest challenges currently faced by people and the planet - fighting disease, protecting the environment and feeding our growing population.

I chose to study biology at university because I wanted to learn about the world around me. A biology degree teaches you how things work; whether it's your own body, a microscopic process or even a complex ecosystem. You also learn about when things go wrong and the innovative ways biologists are attempting to fix these problems.

*Jhuliana 22,
Neuroscientist*



You will find biologists working all over the world in almost every setting imaginable: in research laboratories, hospitals, offices, classrooms, factories, boats, airplanes, submarines, museums, jungles, deserts, forests, caves, treetops, cliffs, frozen tundra...

FEEDING THE HUNGRY. Plant scientists, geneticists and molecular biologists are working to improve the yields of our most important food crops and to prevent their destruction by pests, disease, and drought. Biologists are improving nutritional health by packing our foods full of essential vitamins while toxicologists ensure that our food supplies are safe to eat.



PROTECTING THE PLANET. Conservation biologists, ecologists, and environmental managers travel the globe documenting our environment, monitoring the effects of global warming, protecting habitats from destruction or potentially harmful species, and rebuilding damaged ecosystems.

FUELLING UP. The race is on to find new and sustainable fuels for the future. Biotechnologists and biochemists are combining biology with chemistry and engineering techniques to develop sustainable sources of energy creating cleaner, greener fuels from sunlight, carbon dioxide and algae.

FINDING THE CURE. Biologists work in a huge range of health related careers; clinical biologists, physiologists, and pharmacologists develop and trial new medicines, test blood and tissue for diseases and advise medical practitioners on the best treatments for their patients. Geneticists are replacing defective genes, restoring sight and immune systems.



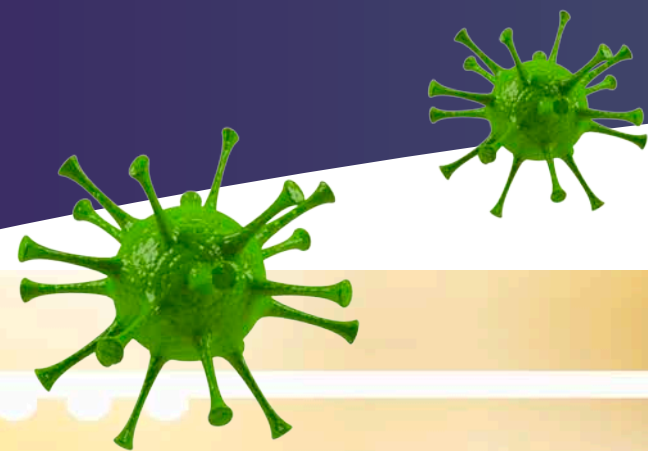
WINNING GOLD. Human biologists, physiologists and sport scientists study human anatomy from joints and muscles to genes and cell growth. They are uncovering how genetics, environment, diet and culture interact to determine athletic performance, and what makes the best the best.



UPDATING THEIR STATUS. There are a growing number of biologists working in science communication and education, helping to take biology from the laboratory to the public. You'll find biologists in classrooms, designing museum exhibits, publishing work in newspapers, on the radio and TV, and using online tools such as blogs and social networks.



SWINGING THE VOTE. Science advisors are at work in nearly every department of the UK Government, advising policy makers on a variety of issues such as the contribution that biology research makes to the economy, how to prevent the spread of contagious infections, and stopping the declines in the nation's honey bee populations.



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There is no ‘typical day’ in my job and that is why I love it! My job is to raise awareness of microbiology’s everyday influence on us and how it can enrich our lives. It isn’t just about reporting on the research findings of scientists in the laboratory. The work of a microbiologist can be much broader than that.

*Vicki 28,
Microbiologist &
Science Communicator*

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My motivation for becoming a researcher is the thrill of the unknown. Scientific research is at the edge of what we currently know and you push that boundary out further. The problems that I am working on have no known solution. I can’t use a text book or search the internet for the answer because there is no answer yet. That makes it very exciting.

*Owen 26,
Postgraduate Researcher
at the University of Bristol*

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Blurring the Boundaries



Some of the most innovative and exciting work in science occurs at the boundaries where biological knowledge is combined with techniques from chemistry, physics, engineering and maths.

BIOCHEMISTRY Investigating the chemical processes of life, combining biology with chemistry to study organisms at the molecular and cellular level.

BIOMATHS AND COMPUTATIONAL BIOLOGY Using mathematical techniques to solve biological problems.

BIOTECHNOLOGY Combining biology with chemistry and engineering to create new biology based technologies.

BIOPHYSICS Using the laws of physics to better understand movement and structure and answer biological questions.

BIOENGINEERING Combining biological knowledge with engineering and design to produce new and innovative products.

What a biology degree means for you

Studying biology at university will provide you with valuable knowledge, skills and experience. You will gain skills that you can use no matter which career path you choose, both in and out of science. They are valued by employers and will look great on your CV.



These skills can open the door to working in business and enterprise, marketing, law, hospitality, politics and policy, journalism, art, economics and much more.

For more details about careers in biology see page 13

Choosing a biology degree

GETTING STARTED Talk to your family, teachers and careers advisors about your interests in biology and the types of degree which could work best for you.

DO SOME RESEARCH! There is a great range of bioscience degrees across the UK. Each bioscience degree will be different so it's important to research your options to find the one that's right for you. You can search degree options and find course details online. There's more information on different types of biology degree on page 8.

Go to UCAS www.ucas.com where you can search for degrees in biology and biological sciences or specialised areas like genetics, ecology, or biomedical science.

Check the websites of individual universities for details on work placement options, the types of assessment (exams, course work, essays) and contact hours - the time spent in lectures, tutorials and practicals.

STILL HAVE QUESTIONS? Contact the university course organisers or admissions office for any information not available online – they will be happy to answer your questions.

ATTEND OPEN DAYS Depending on the university, there may be general open days or subject specific open days. These can be found on the UCAS website or the institution website. Open days provide the chance to view the university campus and facilities such as lecture theatres and laboratories, as well as to speak to current students and staff about the course and university life. Once you have accepted a place, you often have the chance to go for a second day to get more of an idea of where you'll be living and studying. Go to <http://www.opendays.com/> for listings of upcoming open days



Useful websites

www.unistats.com

www.thestudentroom.co.uk

www.prospects.ac.uk

www.societyofbiology.org/education/careers

www.ucas.com

Different types of biology degree

There are a wide variety of biology degrees on offer in the UK. These will vary in content, duration, and the qualification you achieve, as well as the types of career they prepare you for.

BACHELOR OF SCIENCE (BSc OR BSc WITH HONOURS) usually involves three years (four in Scotland) of study.

Each BSc degree will be different but many are built to be flexible, allowing you to choose from a range of courses in your first year and 'try out' different areas of biology. You can continue to study a variety of courses in the final years of your degree or choose to specialise and focus on the one area that fascinates you the most.

SANDWICH BSc DEGREES offer you an extra year of study where you can gain additional experiences with work, travel or a language by spending a year (normally the third year) in an industrial placement or abroad.

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At university, I studied BSc (Hons) biology. I tried quite a few different topics in my degree, including biochemistry, microbiology, animal science, genetics and molecular biology. By the time I reached my final year, I'd learnt which subjects I most enjoyed (and which ones to avoid!)

*Kelly 23,
Research Information Coordinator,
UK based health charity*

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JOINT AND COMBINED DEGREES

let you study biology in combination with another subject or subjects that interest you e.g. biology with management, biology and a foreign language. These degrees can help broaden your knowledge and skill base but they will reduce the amount of time you spend studying biology to 50 - 60%.

INTEGRATED MASTERS DEGREES (MSci, MBiol, MBiolSci);

usually involves four years (five in Scotland) of study. These degrees allow you to undertake a more in depth study of biology or a specialised area of biology and graduate with a Masters level qualification. Integrated Masters normally include a significant research project or work placement and can provide good training for a PhD or a career in research.

SPECIALISED DEGREES allow you to focus on a particular field of biology from the very beginning of your degree and are great if you already know which area of biology you want to study before entering university - for example neuroscience or plant biology.

Some biology courses offer a common first year for several degrees, allowing you to find out which areas you are most interested in before specialising in a specific field.

NOTE It is important that you research the subject and its career options before applying for a specialised degree to make sure it is the right area for you!

Recognised degrees: If you are unsure about the amount of biology included in a degree programme you can check to see if it is recognised by the Society of Biology. The Society recognises degrees which contain 50% or more biology.

Go to www.societyofbiology.org

IMPORTANT! Every degree will be different. Investigating a university's website will help you find out about the course choices and programme structure offered. Go to page 7 to learn more about finding the degree that's right for you.

What qualifications do I need to study biology at university?

Many universities require two science subjects at A level (or Higher level in Scotland) to study for a biology degree, although some universities accept maths instead of a second science subject. Biology courses which cover a lot of molecular and cellular biology often ask for chemistry A level or Higher. You should look at the entry requirements for the types of degree that you might be interested in before choosing your A level or Scottish Higher subjects.

IMPORTANT! Each university's entry requirements will be different so check the requirements for each university that you are applying for even if it is for the same course.

Do you need maths?

Maths is used across the biosciences for designing experiments, carrying out research and analysing results. Gaining a maths qualification at school beyond GCSE level can be useful when going onto study biology at university. In some cases maths is accepted instead of a second science subject when applying for university.

There are several options for maths qualifications to choose from.

An **AS OR A LEVEL (OR HIGHERS IN SCOTLAND)** in maths will give you strong understanding of core maths and statistics.

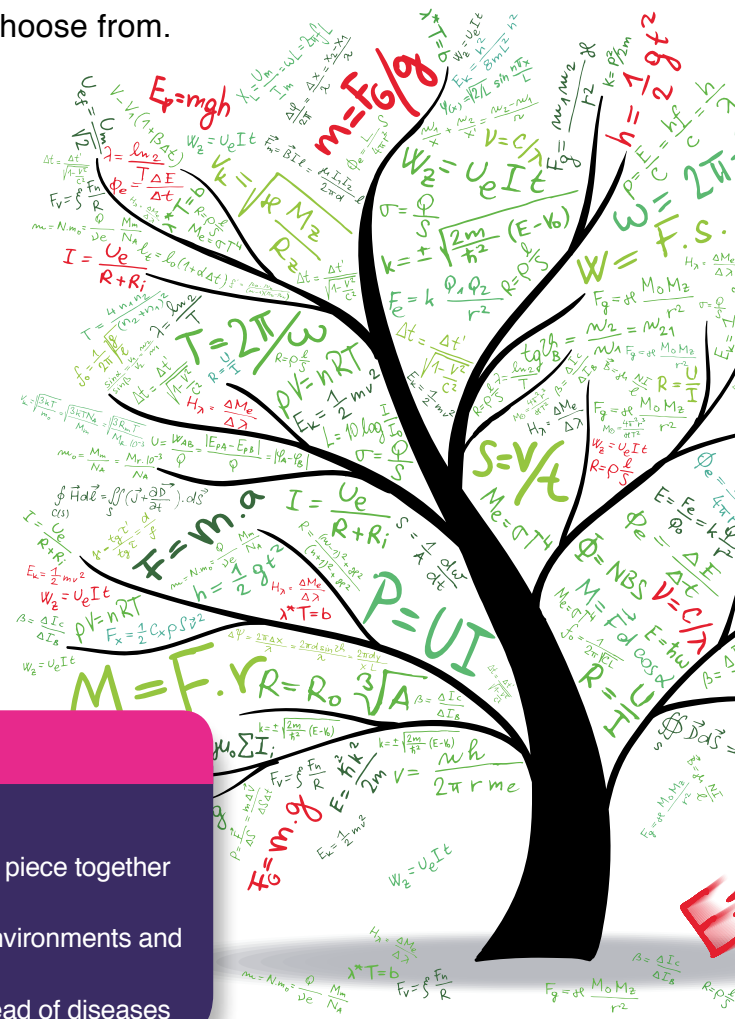
AS USE OF MATHS is ideal if you don't fancy taking the subject as far as A level, but want to learn how to apply advanced maths in real and interesting contexts.

For more information visit: <http://www.fsmq.org/courses/>

FSMQ (FREE STANDING MATHS QUALIFICATIONS) are maths qualifications designed to help reinforce or extend your maths knowledge in particular areas of maths that are relevant to your other studies.

Learn more online: <http://www.fsmq.org/courses/>

DON'T PANIC! While maths is an extremely useful tool when studying biology, most universities DO NOT require a maths qualification for entry into a biology degree and universities often provide maths courses and tutorials designed specifically for biologists to support their studies.



How many fish are in the sea?

Biology research is leaping forward with the help of maths.

- Evolutionary biologists use maths to analyse genetic data and piece together the tree of life
- Ecologists use statistics to uncover links between changing environments and animal populations
- Mathematical modelling helps epidemiologists predict the spread of diseases

Degree alternatives

Don't think a university degree is right for you? There are other ways for you to continue studying biology once you leave school.

“ After completing A levels I didn't want to go to university but I did want a career working with animals. When I saw an advert for an animal technologist position it seemed like an ideal job. Through training and gaining [vocational] Institute of Animal Technology qualifications, I was given more responsibility and independence to work without supervision.

*Louise 28,
Animal Technologist*

ACCESS COURSES are employment-based higher education qualifications which provide professional development in a broad range of vocational areas, including the life sciences. They usually involve two years of study full time, or can be studied part time or with flexible learning hours. Learn more online: <http://www.direct.gov.uk/en/EducationAndLearning/>

HNCs (HIGHER NATIONAL CERTIFICATES) AND HNDS (HIGHER NATIONAL DIPLOMAS) are work-related (vocational) higher education qualifications. They are designed to equip you with the skills and knowledge required for particular fields of work including agriculture, health and social services. HNCs can take one year to complete full time and HNDs take two years full time and both can also be taken part time. Learn more online: <http://www.direct.gov.uk/en/EducationAndLearning/> <https://nextstep.direct.gov.uk/improvingyourcareerthroughlearning/>

STUDYING PART TIME The Open University and many other institutions offer you the opportunity to study part time for a degree while you work.



Exploring careers in biology

Don't worry if you are unsure about your career – you can find careers advice about biology online.

EXPLORE BIOLOGY CAREERS ONLINE Go to www.societyofbiology.org where you can learn more about the great range of careers open to biologists, find profiles of biologists working in different careers and get tips on job applications. There are also links to useful websites on careers and job opportunities.

CAREERS FAIRS Speaking to someone who works in the field that interests you at a careers fair or careers day is a great way to quickly get an idea of what it's like to work in a particular job or field.

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Studying science gives you such a broad base of skills. You are developing your communication, team work and ability to think logically and critically as well as subject specific knowledge. Having a broad skill set will undoubtedly make me more attractive to employers when I'm looking for a job after I graduate.

Holly, 22,
Biochemistry Student

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Useful websites

www.careersadvice.direct.gov.uk
www.societyofbiology.org/education/careers
www.futuremorph.org
www.connexions-direct.com/jobs4u

Getting experience

Getting work experience through an internship or work placement can help you to:

- get *real life* experience of a biology related career
- experience what it's really like to work in a professional environment
- decide which types of jobs are right for you
- learn new skills
- improve your CV and personal statement
- try something new and have fun!

Many universities and degrees will offer you the opportunity to gain work experience through work placements during the course of your studies (read about sandwich degrees on page 8)

A range of businesses and organisations offer internship and work placement opportunities for students in industry, manufacturing, museums, research organisations, and professional societies like the Society of Biology.

ASK YOUR LECTURERS AND PROFESSORS

Many university lecturers will also be researchers, so if you are interested in experiencing research, you could ask your university lecturers and professors if you could join them in the lab or the field.

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I studied genetics at university and during my final year I realised that research wasn't for me. I was keen to keep science in my job and so I got a job working in a science publishers. I now work as an Assistant Editor, commissioning articles, reading submissions, ensuring they go through the peer review process, checking proofs and helping layout each journal issue. It gets pretty stressful around print time but it's worth it when you hold a finished issue in your hands.

*Andrea, 24 ,
Assistant Editor*

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“ Studying biology has given me great purpose - with the oceans rapidly changing due to climate change, what I’m studying is relevant and I want to put my learning into practice to help us understand what is happening to ecosystems.

*Dan, 22,
Marine Biology Student*

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“ Don’t just settle for the opportunities that you can see. Take the initiative, look around and talk to people. In my experience it is definitely worth it!

*Cerian, 23,
Senior Associate Scientist
in Biomarker Research*

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Society of Biology



The Society of Biology is the leading professional body for the biological sciences - representing over 80,000 biologists including students, practising scientists and interested non-professionals.

We are committed to promoting biology as a subject of choice to students in schools, colleges and universities, to supporting young scientists through higher education, and to provide career guidance at all levels.

Become a student member

Joining the Society of Biology as a student member is a great way to demonstrate your commitment to biology and improve your CV or personal statement.

Student membership also comes with significant benefits.

- Stay up to date with all the latest biology news on new research and policy with a subscription to *The Biologist* and our monthly e-newsletters
- Find biology events and network with professional biologists in your local area through our branches
- Find out about the career opportunities on our free online Jobs Board
- Get 20% discount on biology textbooks from many great publishers
- When you graduate you can use the distinguished post-nominal letters AMSB (Associate Member of the Society of Biology) after your name.



Go to www.societyofbiology.org to learn more.



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