

Biochemistry



Undergraduate study

Courses

Single Honours

BSc Biochemistry

three years C700

BSc Biochemistry with Medical Biochemistry

three years C720

BSc Biochemistry with Molecular Biology and Biotechnology

three years C790

BSc Biochemistry with Study in Industry*

four years

MSci Biochemistry

four years C701

MSci Biochemistry with Medical Biochemistry

four years C721

MSci Biochemistry with Molecular Biology and Biotechnology

four years C791

*Entry is by transfer from any of our BSc courses.

This leaflet contains information for students planning to start university in autumn 2019. We have made every effort to ensure all details are correct at the time of going to press (June 2018). However, since this information is subject to change, you are advised to check the University's website, bristol.ac.uk/ug-study, for the latest updates.

Why study biochemistry at Bristol?

Studying a degree in biochemistry will give you a unique insight into life at a molecular level and will prepare you for a career in any of the major biosciences.

Biochemistry is the study of life at a molecular level. It spans all aspects of cellular biology and chemistry including: the forces controlling molecular 3D structure; the metabolic pathways that are essential for life; the molecular control of DNA replication, expression and repair; the signalling pathways acting between and within cells; and how the cytoskeleton governs the behaviour and function of organelles within cells, and of cells within living tissues.

The School of Biochemistry at Bristol has an excellent international reputation. We focus on several areas of major challenge in biochemical research: biomolecular structure and mechanism; dynamic cell biology; and synthetic biology. These themes include studies related to: biotechnology, neuroscience, cardiovascular disease, immunology, and cancer.

Research also covers the complex interactions between biological molecules, including computer-aided protein modelling and drug design. Our school hosts researchers active at the forefront of these areas, and their research directly informs teaching, ensuring the very latest biochemical discoveries are covered within our courses.

'The School of Biochemistry is one of the most friendly and well-organised schools in the University. The breadth of the course allows you to engage with a range of aspects of science. Above all, you will be taught by passionate lecturers at the forefront of research in their field, who are always available to provide extra help and advice.'

Lavanya (BSc Biomedical Sciences)

What will you study?

Year one

During your first year you take two biochemistry units, Cellular Composition and Cellular Processes, which provide a comprehensive introduction to the subject. In addition, you will study two biological chemistry units, Molecules of Life and Powering Biomolecular Interactions, which will provide the necessary foundation for your future studies. You will also have a choice of other units such as those listed below.

BSc/Msci Biochemistry C700/C701

- Anatomy; Microbiology; Cellular Pathology; Pharmacology I or Physiology I.

BSc/MSci Biochemistry with Medical Biochemistry C720/C721

- Pharmacology I or Physiology I.

BSc/MSci Biochemistry with Molecular Biology and Biotechnology C790/C791

- Microbiology or Cellular Pathology.

In each unit you attend lectures and practicals, and most include small-group tutorials where you can discuss essays, practise numerical questions, share problems, give presentations and develop a range of transferable skills.

Practical teaching takes place in our well-equipped teaching laboratories and is supported by the online dynamic laboratory manual, eBiolabs. This innovative, web-based system allows you to engage fully with the practical teaching and develop your experimental skills.

Year two

In your second year you study two biochemistry units: Macromolecular Structure, Dynamics and Function, and Molecular Cell Biology and two molecular genetics units: Recombinant DNA Technology and Gene Expression and Rearrangement. You also study a unit called Biomedical Research, Employability and Enterprise Skills, which delivers important transferable skills training. You will also have a choice of optional units such as those listed below.

BSc/MSci Biochemistry (C700/C701)

- Cellular and Molecular Pathology
- Infection and Immunity
- Neurophysiology
- Pharmacology I or II
- Physiology I or II
- Mathematics.

BSc/MSci Biochemistry with Medical Biochemistry (C720/C721)

- Cellular and Molecular Pathology
- Infection and Immunity
- Pharmacology II
- Neurophysiology.

BSc/MSci Biochemistry with Molecular Biology and Biotechnology (C790/C791)

- Cellular and Molecular Pathology
- Disease and Defence
- Infection and Immunity
- Pharmacology II
- Neurophysiology
- Mathematics.

In many cases you can choose from a range of other units (eg modern languages) provided that they can be timetabled. The range of optional units you can choose from will depend on which units you have taken during year one. As in the first year, you will attend lectures, tutorials and practicals.

BSc final year

You will take core lectures in advanced biochemistry, comprising: Advanced Cell Biology; Dynamic Proteome; and Cellular Information. You will have the opportunity to study a number of specialist areas, which currently include: Synthetic Biology, DNA – Protein Interactions, Protein Science in Neurobiochemistry, Cardiovascular Disease, and Cancer.

In addition, you will carry out a research project for about eight weeks, where you can conduct original research under individual guidance from a member of staff in a research laboratory (a range of other project types is also available). This work is presented as a report. You will also undertake a library-based literary project where you write an extended essay on a biochemical topic. There is a wide choice of topics available for both the practical and the literary projects.

Biochemistry MSci years three and four

Students registered on our MSci degrees follow a third year that is very similar to the BSc final year (see above), the key difference being that MSci students undertake a Research Training module in place of the research project. This prepares students for a fourth year during which they carry out an extended, 16-week individual research project in the laboratory of one of our research groups. MSci students also take a Science and Society unit, and are able to select two optional units. Unit options in the current academic year include: Cell Biology of



Development and Disease, Protein Assemblies and Molecular Machines, and Synthetic Biology. Teaching is delivered in the form of lectures, workshops and student-led assignments.

Year in industry (available on our BSc courses only)

You may apply to spend a year on an industrial or research institute placement. This placement takes place at the end of your second year of study and you will spend one year as a paid employee of the host organisation. At the end of the year you will be required to submit a report which will be assessed.

Throughout all our degrees, you will be assessed through both written exams and coursework.



Careers and graduate destinations

We aim to produce graduates with the best possible training in biochemical science and skills that can be marketed to a wide range of employers. You will develop analytical, problem-solving and teamwork skills and will be able to communicate effectively, both orally and in writing. Biochemistry is a research-based subject and those students who achieve a good Honours degree have an excellent chance of following a career in bioscience research, with many of our graduates progressing on to a PhD or master's degree.

Biochemists are in demand in the biotechnology and pharmaceutical industries, and some work in medical research establishments or in the scientific and medical publishing fields. Graduates may use their biochemistry knowledge by teaching science in schools, and some join graduate-entry medicine courses. Alternatively, some students find our degree a good preparation for a number of non-scientific careers in IT, management or finance.

The University of Bristol has one of the best employment records in the UK. We are rated sixth in the UK in the QS Graduate Employability Rankings 2018 and are the fourth most targeted university by top UK graduate employers (High Fliers Research 2018).



Making your application

Typical offer for BSc/MSci Biochemistry*

Visit bristol.ac.uk/ug19-biochem for other qualifications.

A-levels AAA (contextual AAC[†]) including AA in Chemistry and another core science/mathematics subject, or A*AB (contextual ABB[†]) including A in Chemistry and B in another core science/mathematics subject.

IB Diploma 36 points overall (contextual 32[†]) with 18 at Higher Level (contextual 16[†]), including 6, 6 at Higher Level in Chemistry and another core science/mathematics subject.

English Language profile E^{††}

GCSEs No specific subjects required.

[†]For information on contextual offers, visit bristol.ac.uk/contextual-offers.

^{††}For details of English language profiles, visit bristol.ac.uk/ug-language-requirements.

Selection UCAS or Common Application.

*The typical offer is indicative only and the University accepts a wide range of qualifications. The information is correct at the time of printing (June 2018); however, we recommend you check the University's website for the most up-to-date information: bristol.ac.uk/ug-study.

You will need a strong background in chemistry and at least one other science (typically biology) or mathematics. You will need to be interested in and committed to the study of biochemistry, and your personal statement should demonstrate your intellectual curiosity by for example, showing that you have read beyond your school syllabi or have undertaken relevant work experience.

Our degree courses require independent work and so your personal statement and reference should show that you are self-motivated and work hard. The personal statement should show that you can communicate effectively and write clear and correct English.

Further information

Find out more about the School of Biochemistry: bristol.ac.uk/biochemistry.

Contact us

Enquiries Team

Tel +44 (0)117 394 1649

Email choosebristol-ug@bristol.ac.uk

If you have any questions about courses, applications or any aspect of being a UK or international student at Bristol please contact the Enquiries Team.

Accommodation Office

Tel +44 (0)117 954 6640

Email accom-office@bristol.ac.uk

bristol.ac.uk/accommodation

Disability Services

Tel +44 (0)117 331 0444

Email disability-services@bristol.ac.uk

bristol.ac.uk/disability-services

University guide to the city of Bristol

bristol.ac.uk/citybristol

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Tel +44 (0)117 394 1573

Email ug-publications@bristol.ac.uk

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Matt Lincoln, Dan Rowley

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