

BIOCHEMISTRY

Biochemistry is the molecular basis of life. It applies chemical principles to some of the most exciting problems in the life sciences industry, explains how drugs work, helps us understand what goes wrong in diseases, and enables 'genetic engineering'. Consequently, the subject is essential to drug discovery, biotechnology and biomedical research. Biochemists investigate the structures, functions and biological roles of molecules involved in metabolism, cell signalling and the transmission of genetic information.

The BSc in Biochemistry enables students to gain an understanding of the concepts and theories relating to Biochemistry and the application of a range of practical laboratory skills. Students will explore the relevant analytical principles and techniques, and apply these in a research setting. You will understand collation, quantitative analysis and interpretation of experimental data, and the ability to problem solve. Additional skills such as; personal and team skills, data management, presentation skills, career management planning and applying your degree in the workplace will also be covered.

COURSE CONTENT

The Biochemistry degree at Queen's University Belfast, investigates the structures, functions and biological roles of molecules involved in metabolism, cell signalling and the transmission of genetic information. Research-led teaching and the opportunity to complete an integrated Master programme, help prepare our students for a career in biochemical research.

The modules are:

Stage 1

- Fundamentals of Chemistry
- Structure, Reactivity and Mechanism in Organic and Bioorganic Chemistry
- The Molecular Basis of Life
- The World of Microorganisms

Stage 2

- Experimental Biochemistry
- Cell Biology
- Microorganisms in Action
- Molecular Genetics and Bioinformatics
- Advanced Cell Biology

Throughout stages 1 and 2 practical classes in Biochemistry reinforce and compliment the theory, providing students with a solid foundation on which to build upon for stage 3.

At the end of Stage 2, BSc students may be eligible to transfer to the same named MSci degree pathway provided they meet certain requirements. MSci students may also transfer to the BSc degree at any point in stages 1 and 2.

Work Placement

- Biochemistry students can complete an optional 16-week degree-related work placement
- Biochemistry with Professional Studies students will complete a one-year, degree-related work placement

Stage 3

- Industrial Microbiology
- Immunology and Immunotherapy
- Microbiome - Biotechnological applications and 'Omic manipulations
- Biomolecules in Health and Disease
- Research Project (BSc students only)

BSc Honours

Biochemistry 3 yrs (C700)

Biochemistry with Professional Studies 4-yr SW (C704)

MSci Honours

Biochemistry 4 yrs (C702)

Biochemistry with Professional Studies 5-yr SW (C705)

Entrance Requirements

BSc

A-level:

BBB including Chemistry and Biology + GCSE Mathematics grade C/4

OR

ABB including Chemistry and at least one from Mathematics or Physics + GCSE Biology grade C/4 or GCSE Double Award Science grades CC/44 + GCSE Mathematics grade C/4.

MSci

A-level:

AAB including Chemistry and Biology + GCSE Mathematics grade C/4

OR

AAA including Chemistry and at least one from Mathematics or Physics + GCSE Biology grade C/4 or GCSE Double Award Science grades CC/44 + GCSE Mathematics grade C/4.

Note: MSci applicants will automatically be considered for admission to the BSc if they are not eligible for entry to the MSci, both at initial offer-making stage and when results are received.

Option to Transfer: transfers between BSc and MSci may be possible at the end of Stage 2.

All applicants: where A-level Biology, Mathematics or Physics are not offered, A-levels in three other subjects including Chemistry and AS-level Biology would be considered.

For students whose first language is not English

An IELTS score of 6.5 with a minimum of 5.5 in each test component or an equivalent acceptable qualification, details of which are available at: go.qub.ac.uk/EnglishLanguageReqs

WHY QUEEN'S?

Degree Recognition

The BSc Biochemistry and BSc Biochemistry with Professional Studies have been accredited by the Royal Society of Biology following an independent and rigorous assessment. Accredited degree programmes contain a strong academic foundation in biological knowledge and key skills, and prepare graduates to address the needs of employers.

The MSci Biochemistry and MSci Biochemistry with Professional Studies hold advanced accreditation with the Royal Society of Biology. Advanced Degree Accreditation by the Society recognises academic excellence in the biosciences, and highlights degrees that educate the research and development leaders and innovators of the future.

Work Placement

Optional work placements on these programmes provide students with the opportunity to utilise the practical skills gained during the teaching of their degree and apply these in a work environment. Past students have gained work placement within organisations such as Almac, Warner Chilcott, Randox, Norbrook Laboratories, Altnagelvin Hospital and Belfast City Hospital.

Research Experience

Final year research projects allow students to gain considerable research experience in one of the research laboratories at Queen's University Belfast. Working alongside world-leading researchers enriches the students experience and assists them in pursuing a career in biochemical research.

CAREERS/FURTHER STUDY

Studying Biochemistry at Queen's develops the core skills and employment related experiences that are valued by employers, professional organisations and academic institutions – particularly analytical and numerical skills.

Biochemists can gain employment in growth areas such as the biotechnology, food and pharmaceutical industries, biomedical research, the NHS and research and development in academia and industry. Approximately one third of our graduates go on to further study before entering specialist employment.

Although the majority of our graduates pursue careers in the molecular life sciences, significant numbers develop careers in a wide range of other sectors such as science communication, education, legal services, journalism, finance and management.

The subject is also widely accepted for graduate entry to medical, dental, veterinary and pharmacy schools – an increasingly common route into these professions, with many universities in the UK and Ireland offering four-year graduate programmes.

Further Study

Those wanting a career in biochemistry research will normally obtain a PhD, and we anticipate that the majority of MSci graduates will either progress directly to research roles in biochemistry laboratories or to PhD programmes in biomedical research, biotechnology, drug discovery and agri-food research as well as in 'pure' biochemistry.

Master's programmes offer the opportunity to train in specialist areas (eg forensics, nutrition, biotechnology) in order to enter professions in those fields or to further enhance academic and research skills before embarking on a PhD; see the University website for further study information.

Biochemistry graduates are eligible to study for a PGCE (a qualification enabling graduates to teach in schools) in either Biology or Chemistry – subjects in demand in schools across the UK.

"I would highly recommend the Biochemistry course. It provides plenty of hands-on learning, which is vital in the workplace. Personally I think the Professional Studies module is an excellent way to get a better chance at securing a graduate job. The course provides great knowledge for working in research or laboratory roles."

Ryan Steele, BSc Biochemistry with Professional Studies, 2017



Entrance requirements

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Course information

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