

Nottingham Trent University Course Specification

Basic Course Information

1.	Awarding Institution:	Nottingham Trent University
2.	School/Campus:	Science and Technology/Clifton
3.	Final Award, Course Title and Modes of Study:	BSc (Hons) Biochemistry FT, SW
4.	Normal Duration:	3 years Full Time (FT), 4 years Sandwich (SW)
5.	UCAS Code:	C700

6. Overview and general educational aims of the course

BSc (Hons) Biochemistry aims to provide you with in-depth knowledge and skills in the molecular aspects of living processes. Our course provides you with necessary references as to how molecular biochemistry is integrated in broad living processes. As a result, together with acquiring solid biochemical training, you will gain an awareness of the role of biochemistry in living organisms. You will study key aspects of DNA/RNA synthesis, protein folding, structure and function, enzyme catalysis, metabolic control, biochemical disorders and the molecular genetics of human diseases.

You will gain practical experience in fundamental techniques including PCR (polymerase chain reaction), molecular cloning, protein analysis, biochemical catalysis and kinetic models as well as bioinformatics as applied to the analysis of gene databases and protein structure-function relationships. There is an emphasis on developing knowledge and understanding such that you acquire the skills, qualities and attributes expected by employers or for postgraduate studies and research.

This course is offered in full time mode (3 years) and sandwich mode (4 years). In the sandwich mode, you will spend year 3 of the course on a work placement for example in food standards testing. If you decide to follow this route, the Employability Team will work with you to develop your *curriculum vitae* and will help you to target your applications so that you get a placement that is right for you. You will also be assigned a Placement Tutor who will monitor your progress and visit you at the company.

New and returning students participate in a matriculation event during Welcome Week. This matriculation event is designed to facilitate getting to know one's peers, reflect on your motivations for studying at university, support transition into higher education and promote course cohesion. Re/integration events for international students, mature students, placement students are part of this event. This creates the opportunity to build international relationships with fellow peers, mentors and academics.

For students who graduate in 2019/20 and subsequent years this named award is accredited by the Royal Society of Biology (RSB) and subject to successful completion of the level 6 Research Project module. This 40 credit point module has to be passed and cannot be compensated.

7. Course outcomes

Course outcomes describe what you should know and be able to do by the end of your course if you take advantage of the opportunities for learning that we provide.

Knowledge and understanding

By the end of the course you should be able to:

1. demonstrate knowledge and understanding of the essential facts, terminology, classification systems, major concepts, principles and theories in biochemistry;
2. critically evaluate concepts in biochemistry and apply them in problem solving scenarios;
3. identify current developments in biochemistry and the applications arising out of them;
4. understand methods used to acquire, interpret and analyse biochemical information from a variety of sources;
5. use and assess the values of a range of practical and presentation techniques and methodologies, including data analysis and use of statistics;
6. understand and appreciate complex ethical issues within the biosciences, and perceive how debate informs concerns about the quality and sustainability of life at local and international scales;

7. make appropriate and informed career management choices and be knowledgeable about entrepreneurial issues concerning biochemistry.

Skills, qualities and attributes

By the end of the course you should be able to:

8. acquire, analyse, interpret, evaluate and apply data from a variety of sources;
9. develop critical skills in the interpretation of scientific knowledge and data;
10. apply scientific principles and methodologies in investigations;
11. use equipment and materials competently and demonstrate acquisition of technical skills relevant to biochemistry;
12. communicate effectively in written, graphical and oral formats;
13. prepare and present scientific reports to professional standards;
14. apply numerical skills;
15. select, use and critically evaluate appropriate information using digital and traditional resources;
16. work independently and as part of a team, developing leadership capacity and the ability to work both autonomously and collaboratively;
17. demonstrate the skills required to plan, implement, draw conclusions, evaluate and report on a programme of research;
18. plan and prioritise effectively to manage work and time, and to reflect appropriately on your own performance.

8. Teaching and Learning Methods

Teaching and learning are focused on lectures supported by practical, laboratory classes and workshops. Much of the theory introduced in lectures is consolidated through these laboratory sessions and through small group seminars. Lecture material is supported through e-resources. The University Virtual Learning Environment is widely used to post summary slides of lectures, resources such as articles and recent research papers and information about the organization of modules and the course. It is additionally used for multiple choice and other question sets that you can use to check your progress and understanding of material.

On this course you will take part in ethical debates on the use of genetically modified organisms (GMOs) and the different international positions on this issue. You will consider the financial and environmental costs of scientific research versus potential improvements to human and animal health, as well as the economic benefits of a successful biotechnology industry. You will also examine how bioinformatics informs development of new medical treatments.

During your course, practical classes focus on hands-on acquisition of scientific skills in the application of key principles, concepts and methods in biochemistry.

Laboratory sessions involve problem solving, data collection and observation. Further time is allocated to the analysis, interpretation and evaluation of your results. Seminars are used to offer a small group teaching environment often led by students' needs to review, discuss and consider aspects of taught material from either lecture or laboratory classes.

Through these activities, you will develop the capacity to undertake self-directed study and to become autonomous, independent learners. You will also be expected to carry out supplementary reading and research, which will consolidate taught material, situate your own work within wider theory and allow you to contribute knowledge to your chosen discipline.

Opportunities will exist for you to enhance your communication skills by writing reports in various formats, producing posters and giving oral presentations to your colleagues.

As your course progresses, you will assemble a Skills Portfolio, which is a complementary and highly personalised aspect to your learning experience. It provides a vehicle for you to evaluate, collate and showcase your practical and transferable skills for personal development and future employment.

You will be given support and formative feedback in course tutorial sessions at all levels. As the course progresses you will collect information for your Skills Portfolio. To ensure timely progression and achievement, at Levels 4 and 5 you will submit some portfolio evidence for summative assessment and feedback. The Skills Portfolio culminates at Level 6 in a capstone summative assessment with reflection on your work, where it contributes to the Research Project module.

You will participate in many practical, workshop and interactive sessions throughout your course and build experience in a number of key scientific and transferable competencies. Each skill is covered in several modules across a course, giving you the opportunity to continually learn, refine, and perfect your professional skills.

You will also have access to sustainable video resources promoting an inclusive learning environment

9. **Assessment Methods**

The course uses a variety of assessment methods to develop your individual strengths and to enable you to demonstrate achievement of the learning outcomes. Subject knowledge and understanding are mainly tested through tests and examinations, preparation of case studies, reports detailing practical work, oral presentations and poster defences.

Practical investigations are used to assess a range of intellectual and scientific skills. Your ability to test hypotheses, observe, collate, present, interpret and evaluate findings of an investigation is assessed through the preparation of formal scientific reports.

Your communication skills, in written and oral formats, are assessed at numerous points during the course. Scientific reports, poster presentations, essays and examinations provide opportunities to demonstrate your writing skills. Oral presentations and verbal defence of posters allow demonstration of your verbal and visual communication skills

As well as theoretical knowledge you will be required to demonstrate acquisition of practical skills. Essential practical skills will be assessed during laboratory sessions at Level 4. This assessment will contribute 25% to your Practical Techniques in Biology module, which you will have to pass to satisfy the RSB practical skills requirement for accreditation. If you have entered the course at Level 5 you will have a further opportunity to have your practical skills assessed if necessary.

As this named award is accredited by the RSB it is subject to successful completion of the level 6 Research Project module. This 40 credit point module has to be passed and cannot be compensated.

You will be given written feedback on all your assessed work to help you to develop your effectiveness as a learner and to achieve your goals.

10. **Course structure and curriculum**

Our BSc (Hons) Biochemistry degree is either a 3 year Full Time or a 4 year sandwich course.

The academic year comprises 30 weeks divided into 3 terms. In the first year, two modules are taught in the first term, the remaining four pathway-specific modules in terms 2 and 3. All modules in years 2 and 3 of the degree are taught throughout the year. Teaching and learning takes place for a total of 26 weeks, with the other 4 weeks of each year being set aside for examinations.

An Honours degree is awarded when you have successfully completed 360 credit points (cp) with 120 cp at each level. An Ordinary degree is awarded if you have passed 120 cp at Level 4, 120 cp at Level 5 and a minimum of 60 cp at Level 6.

A Diploma of Higher Education is awarded if you have successfully completed 120 cp at Level 4 and 120 cp at Level 5, but fewer than 60 cp at Level 6. You can be awarded a Certificate of Higher Education on successful completion of 120 cp at Level 4, but fewer than 120 cp at Level 5.

In addition to gaining one of the awards above, you can qualify for a Diploma in Professional Practice at pass, commendation or distinction level on successful completion of a one year placement. You can also be awarded a Certificate in Professional Practice on completion of a minimum of 12 weeks on placement (for example if you have taken a part time or summer position).

The BSc (Hons) Biochemistry degree is modular, and addresses key aspects of the Biochemistry and molecular biology of eukaryotic and prokaryotic cells. The modules selected on the degree are designed to meet the course learning outcomes. Modules are mainly 20cp unless otherwise stated and classified as either core or optional. At Level 5 you can choose a genetics route or a

pharmacology route by taking the appropriate optional module, and studying this aspect in more detail at Level 6.

The modules selected on the degree are designed to meet the course learning outcomes. Modules are 20 cp unless otherwise stated and are classified either as core (C) or optional (O).

Level 4 (year 1)

Introduction to Biochemistry (C)

Living Systems (C)

Practical Techniques for Biology (C)

Genetics and Immunology (C)

Introduction to Pharmacology (C)

Molecular Principles for Biochemistry (C)

Level 5 (year 2)

Biochemical Techniques (C)

Metabolism and its Control (C)

Molecular Biology and Protein Structure (C)

Clinical Biochemistry (C)

Antibody and DNA Technology (C)

One from

Molecular Genetics of Human Diseases (O) genetics route

Chemotherapy of Cancer and Infections (O) pharmacology route

Optional one year post in industry supported by placement tutors and employability team

Level 6 (final year)

Research Project 40cp (C)

Current Topics in Biochemistry (C)

Cell Signalling and Cancer (C)

Bioinformatics (C)

One from

Comparative Developmental and Evolutionary Genetics (O) genetics route

Toxicology (O) pharmacology route

11. **Admission to the course**

Entry requirements

For current information regarding all entry requirements for this course, please see the 'Applying' tab on the NTU course information web page.

The full UCAS entry profile for this course can be found at: <http://www.ucas.com/>

12. **Support for Learning**

As a Nottingham Trent University student you will have the full support of the Academic Team in support for learning, and have full access to Student Support Services. https://www4.ntu.ac.uk/current_students/services/index.html

In addition, School-based pastoral support networks are in place to offer you guidance and advice on academic and personal issues.

At the start of your year we will welcome you with a series of events designed to introduce

(or reintroduce) you to the University and its services, fellow students and your academic team.

University Accommodation Officers will provide you with information, guidance and continuing support for example with places in halls of residence, private rented accommodation and the Landlord Approval Scheme.

From Welcome Week onwards we support progression and achievement of students from a diverse range of backgrounds. Course Tutor groups often comprise students from many places and cultures, ideal for exchanging ideas and understanding topics from multiple viewpoints. You will find that home, international and Erasmus students work together in practical classes and seminars.

Later in the course we encourage sandwich route students to take a placement year, which may be abroad or in the UK. You will be supported by the Employability team and a named academic staff supervisor.

Whilst on placement you may have collected information which could complement your final year Research Project and be discussed with respect to existing international literature. If you are doing a UK-based placement you would be expected to interpret your results within a wider, international context.

13. **Graduate destinations / employability**

There is a wide range of career opportunities relating to biochemistry, or postgraduate studies, which our students enter on completion of the course. Employment opportunities include careers in research and development as microbiologists, quality assurance assistants, biochemists and biomedical scientists.

14. **Course standards and quality**

We strongly value your input and ideas about your course. Its management and development is supported by a Course Committee, with staff and student course representatives. It operates to discuss matters arising, consider External Examiners' comments and review annual course reports. The Committee responds to your feedback since your voice plays a crucial role in the content and structure of your course and the way in which it is run.

Overarching responsibility for quality control lies with the School Academic Standards and Quality Committee whose remit is to provide guidance and support to academic courses.

External Examiners offer further quality control through monitoring academic standards and moderation of assessment tasks and processes.

15. **Assessment regulations**

This course is subject to the University's Common Assessment Regulations (located in its Academic Standards and Quality Handbook). Any course specific assessment features are described below.

Supplement to Common Assessment Regulations to be included post DAG

16. **Additional Information**

Collaborative partner(s):	None
Course referenced to national QAA:	Biosciences
Benchmark Statements:	
Course recognised by:	Royal Society of Biology
Date implemented:	September 2018
Any additional information:	