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Nottingham Trent University Course Specification

	Basic Course Information	
1.	Awarding Institution:	Nottingham Trent University
2.	School/Campus:	Science and Technology/Clifton Campus
3.	Final Award, Course Title and Modes of Study:	**MBiol Biochemistry** **BIOL280 FT** **BIOL281 SW**
4.	Normal Duration:	4 years FT or 5 years SW
5.	UCAS Code:	C701

6. Overview and general educational aims of the course

MBiol Biochemistry is an Integrated Masters Degree that combines undergraduate and postgraduate study. The degree is designed for students with a clear drive and ambition to progress into a professional scientific career in industry or academia, and it is tailored to provide knowledge, technical skills and research expertise for progression onto PhD level studies in areas such as molecular biology and protein biochemistry. It will provide you with great depth and breadth in the field of biochemistry and prepare you for a wide range of careers. It will help you to stand out in the jobs market.

Our course provides you with an extensive knowledge of living processes from molecules to cells to organisms. You will study key aspects of protein structure and function, mechanisms of enzyme catalysis, metabolism and its control, molecular genetics of human diseases, physics and thermodynamics of biomolecular processes, as well as current biochemistry techniques and experimental approaches.

You'll gain practical experience in fundamental techniques including PCR (polymerase chain reaction), molecular cloning (DNA modification), protein purification and analysis, biochemical catalysis and kinetic models, fluorescence techniques (including confocal microscopy) and molecular analysis of gene expression (quantitative PCR). There will also be a strong emphasis on bioinformatics (computer algorithms-based analysis of gene databases and protein structure-function relationships). This will be underpinned by training in statistical methods and biomathematics.

The final year is dedicated to a year-long project where, in a cutting-edge laboratory setting you will devise, plan and carry out a substantial piece of scientific research. You will become part of our research team during your project, and will be given expert supervision by internationally recognised scientists.

This course is offered in full time mode (four years) and Sandwich mode (5 years). In the latter you will typically spend year 3 on placement working in the private or public sector in a role that is aligned with your course.

MBiol Biochemistry aims to provide you with an interesting and enjoyable educational experience at a higher-level than is possible on a BSc course by:

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- Offering content that will encourage and assist you to realise your potential by means of an applied and creative approach to solving scientific problems.
- Developing a broad and deep knowledge and systematic understanding of biology and its related disciplines, and the skills to apply this knowledge at the forefront of the discipline.
- Providing you with the opportunity, in a cutting-edge research laboratory, to develop the skills of an independent researcher, from literature review, through study design and execution, to scientific communication.
- Imparting the specialised knowledge and skills necessary to prepare you for further study in a research-focussed environment
- Equipping you with the critical analysis, understanding, qualities and attributes necessary for a wide range of careers in industry, commerce, teaching, and research.

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:

CLO1 Demonstrate a comprehensive knowledge and systematic understanding of the concepts, principles and theories of biochemistry.

CLO2 Demonstrate a deep understanding of developments, applications and limitations of biochemistry across a variety of areas, some of which are at, or are informed by, the forefront of the discipline.

CLO3 Critically assess and implement appropriate investigative and statistical techniques required to solve a range of problems in creative and innovative ways.

CLO4 Exercise sound judgement, show initiative, and demonstrate an appreciation of the complex ethical issues that arise from biological applications, and how debate informs concern about the quality and sustainability of life.

CLO5 Demonstrate the abilities of an independent researcher, by conducting a substantial and original programme of investigation from literature review, through design, execution and analysis to scientific communication.

CLO6 Make appropriate and informed career management choices in preparation for professional employment or doctoral studies in biochemistry.

Skills, qualities and attributes

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

CLO7 Apply scientific principles and methodologies in investigations.

CLO8 Select, use, and critically evaluate appropriate information using digital and traditional resources.

CLO9 Work independently or as part of a team, developing leadership capacity and the ability to work both autonomously and collaboratively.

CLO10 Show a high level of competence in the use of advanced equipment, materials and computing resources.

CLO11 Demonstrate application of numerical skills by acquisition, analysis, interpretation and evaluation of data from a variety of sources.

CLO12 Develop critical skills in the interpretation of complex scientific knowledge, future developments and their applications.

CL013 Be effective and confident in the communication of scientific concepts to a range of audiences by presenting material to professional standards.

CLO14 Demonstrate the skills required to effectively manage their workload and time and reflect appropriately on their own performance.

CLO15 Advance scientific knowledge and understanding by devising and carrying out a substantial piece of original scientific research.

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 (NOW) is widely used to post summary slides of lectures, resources such as articles and recent research papers and information about the organisation of modules and the course.

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

Laboratory classes focus on hands-on acquisition of practical skills in the application of key principles, concepts and methods. Laboratory sessions involve hypothesis testing, problem solving, data collection and observation. Further time is allocated to the analysis, interpretation and evaluation of the results both inside and outside these practical classes. In this way you will develop your skills to undertake self-directed study and to become an autonomous, independent learner. You will also be expected to carry out supplementary reading to consolidate taught material. 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. You will develop your skills to undertake self-directed study and to become autonomous, independent learners. You will apply these skills in a short research project at Level 6 (40 cp) and a further extensive research project at Level 7 (100 cp).

During the course of your studies, you will assemble a Skills Portfolio, which you can use to reflect on the skills and attributes which you acquire. This Portfolio

will prove useful when completing your CV, and when applying for jobs at the end of the course.

9. Assessment Methods

The course uses a variety of assessment methods 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, write-ups of laboratory practical work and field work, oral and poster presentations. Laboratory investigations are used to assess a range of intellectual and practical skills. Your ability to test hypotheses, observe, collate, present, interpret and evaluate findings of an investigation is assessed through the preparation of laboratory reports.

Your communication skills, in written and oral formats are assessed at numerous points throughout the course. Laboratory reports, poster presentations, essays and examinations provide you with opportunities to demonstrate your writing skills. Oral presentations and verbal defences of posters offer ways for you to demonstrate your verbal communication skills, while the poster itself also allows for graphical and spatial skills to be expressed.

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

The Master of Biology, MBiol Biochemistry degree is a 4-year full-time course, or 5 years with a sandwich component. The academic year comprises 30 weeks divided into 3 terms. Teaching and learning take place for 26 weeks with the final 4 weeks of each year being set aside for examinations. An exception to this is in the final year of the course, when projects will continue and be written up to the end of term, there being no end of year examinations.

The course is delivered as a series of modules, and you are required to pass 120 credits (cp.) at levels 4, 5, 6 and 7. An MBiol degree is awarded to students who successfully complete 480 credit points.

The modules selected on the degree are designed to meet the course learning outcomes. Modules are mainly 20cp unless otherwise stated, and except for the optional industrial placement all modules on this course are core (compulsory). All modules are taught throughout the year, with the exception of Living Systems, Practical Techniques for Biology and Science Communication, which are taught in the first term of the first and fourth years respectively. The remaining Level 4 modules are completed over terms 2 and 3.

The structure of the curriculum is outlined below.

Level 4

- Living Systems (20cp)
- Practical Techniques for Biology (20cp)
- Genetics and Immunology (20cp)
- Introduction to Biochemistry (20cp)
- Molecular Principles for Biochemistry (20cp)

- Introduction to Pharmacology (20cp)

Level 5

- Biomathematics and Bioinformatics (20cp)
- Experimental Design (20cp)
- Metabolism and its Control (20cp)
- Biochemical Techniques (20cp)
- Molecular Biology and Protein Structure (20cp)
- Molecular Genetics of Human Diseases (20cp)

Optional industrial placement year for sandwich students

Level 6

- Honours Project (40cp)
- Cell Signalling and Cancer (20cp)
- Current Topics in Biochemistry (20cp)
- Advanced Bioinformatics (20cp)
- Comparative Developmental and Evolutionary Genetics (20cp)

Level 7

- Science communication (20cp)
- MBiol Research Project (100cp)

In order to progress from level 4 to level 5, you should have a minimum of a pass or a compensated pass in all of your first year modules at the first sitting. To progress from level 5 to level 6 and from level 6 to level 7 you must aggregate 60% each year, passing or having a compensated pass at the first sitting of all modules. The rationale behind setting a requirement for maintaining a minimum 2.1 standard after the first year is confidence that an MBiol is a mark of high achievement, high employability, and preparedness for an outstanding career.

If you do not pass all of your modules first time, or (at levels 5 and 6) attain 60% overall, you will transfer to the Honours Degree course in Biochemistry. If you do not pass all modules at level 7, but have passed level 6, you will be considered for award of an Honours Degree in Biochemistry (or an Ordinary degree in Biochemistry on completion of 120cp at levels 4 and 5 plus 60cp at level 6). Boundary conventions will apply if you aggregate up to 2% below 60%.

Students with a compensated pass will receive further consideration as to the relevance of the compensated subject area before there is agreement to proceed with the MBiol. If you have low marks at level 4 you will be counselled about your prospects on the course, and be given the option of transferring to BSc Honours Biochemistry should you so wish.

Information on awards and degree calculations can be found at https://www4.ntu.ac.uk/adq/document_uploads/quality_handbook/138197.pdf

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/

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International students: All applicants whose first language is not English are required to demonstrate suitable English language skills before starting the course. We also accept the TOEFL iCT English test. A list of all accepted qualifications can be found at https://online.ntu.ac.uk/admissions/international-students?cmgfrm=https%3A%2F%2Fwww.bing.com%2F

12. Support for Learning

All students at Nottingham Trent University have full access to Student Support Services. In addition, School based pastoral support networks are in place to offer all students, support, guidance and advice on academic and personal issues. Within the course, students experience the full support of the Biosciences Academic Team. The Academic Team Leader, with support from the course Leader, Module Leaders and academic staff teaching on these modules take responsibility for student support for learning. In Welcome Week new entrants will experience a minimum of a 3 day induction period at the commencement of their first academic year. Induction will inform students of:

- Student Support Services at University, School and Course level;
- University policies and procedures on academic systems;
- Personal development planning;
- Timetable issues, room allocations and location;
- University, School and Course Handbooks;
- Enrolment procedures;
- Computing, IT and Library services;
- Health and Safety procedures.

In Welcome Week you will be assigned a Course Tutor who will meet with you in a small group in the first year and provide you with any advice and support that you may need. The Course Tutorials are timetabled and are designed to help you reflect on your approach to study, make connections between modules and encourage you to achieve your maximum potential. Tutorials are also used for personal development planning and skills development.

Extensive online module information including learning materials is provided on the University virtual learning environment (NOW). This also includes course information such as the course handbook and assessment deadlines.

The University provides a wide range of student services, where you can get support and advice on issues such as finance, dyslexia and disability, and personal problems http://www.ntu.ac.uk/student_services/index.html

University Accommodation Officers will provide you with information, guidance and continuing support about accommodation issues, for example hall of residence, private rented accommodation, and the Landlord Approval Scheme. The Accommodation Services can be accessed through www.ntu.ac.uk.

If you take the opportunity to undergo industrial training, you will be supported by the Placements Office staff and a named academic staff supervisor.

13. Graduate destinations / employability

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Graduate employability is fundamental to the strategic aims of Nottingham Trent University – NTU is consistently placed close to the top of the league tables of all UK universites for graduate employment.

This degree is designed for students with a clear ambition to progress into a professional scientific career in industry or academia. Employment opportunities include careers in research and development, management the bioscience and pharmaceutical industries, and postgraduate study or research.

14. Course standards and quality

- The Course Committee, with staff and student representatives, operates to discuss matters arising on the course, review module feedback and consider the Course Report and External Examiners' reports.

- Teaching in the School of Science and Technology is regularly reviewed by the University

- The subject benchmarks of the Quality Assurance Agency have been incorporated into the course's learning outcomes

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, 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:

For automatic progression to the next level, MBiol students must show a satisfactory performance at levels 4, 5 and 6, achieving a pass or compensated pass in all modules at the first sitting. In addition, to progress on the MBiol from levels 5 and 6, an aggregate mark of 60% must be attained each year.

Students who successfully complete 120cp at levels 4, 5 and 6 but fail to complete level 7 may be awarded an Honours Degree in Biochemistry (usual classifications apply). Due to the structure of level 7, there is currently no opportunity to award a Postgraduate Certificate following partial completion of level 7.

Students who successfully complete a period of industrial training and pass the assessments will be awarded a Diploma in Professional Practice at the termination of their studies at either MBiol or Honours level. This diploma is rated at Placement level P3 (120cp) but does not contribute credits towards the degree.

16. Additional Information

Collaborative partner(s):	None
Course referenced to national QAA Benchmark Statements:	Biosciences
Course recognised by:	
Date implemented:	September 2018

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Any additional information:	None