

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:	MSc Biotechnology FT, PT and S/W
4.	Normal Duration:	1 year FT, 2 years PT, 2 years S/W
5.	UCAS Code:	BIOL057, 115, 073, 116

6.	Overview and general educational aims of the course
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This exciting course in Biotechnology is designed to give you the theoretical and practical skills needed to enter a career in a biotechnology related area either in an academic institution, a research institute or in the industrial/business sector. In particular, it will give you the opportunity to develop your practical skills through a laboratory-based research project. It will also enable you to develop an ability to plan a research project, apply effective data analysis skills to your results, and to communicate your findings in an articulate and professional manner through focused taught modules using case study approaches.

This course is ideal if you are either:

- a recently qualified graduate with the equivalent of a good UK honours degree with practical experience and are looking for the professional skills needed to obtain a job in a biotechnology research related area or a career in academic research into biotechnology;
- are working for a company in a biotechnology research-related area and want a masters-level qualification to give you a competitive edge;

The broad aims of the MSc Biotechnology are to:

- provide an intellectually challenging and professionally relevant course at the forefront of biotechnology, led by academic experts;
- explain how the boundaries of knowledge in this professional discipline are advanced through research and enable you to conduct research through a targeted research project;
- give you opportunities to deal with complex issues in a systematic and creative way and show originality in solving problems;
- develop the theoretical, practical and strategic skills needed to plan and execute an in-depth, laboratory based Biotechnology research project;
- produce post-graduates who demonstrate sound judgment, personal responsibility and initiative, thus making them attractive to employers.

The MSc Biotechnology course is a one year full time, two year part time or two year sandwich placement course. Following successful completion of the sandwich placement you may also be eligible for the award of Postgraduate Diploma in Professional Practice (PGDIPP).

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 comprehensive knowledge and understanding of biotechnology, and a critical awareness of current and emerging problems with insights at the forefront of the discipline;
CLO2	Demonstrate expertise in fundamental and specialised biotechnological methodologies, and an understanding of their advantages, limitations and applications;

CLO3	Identify and resolve scientific and technical problems associated with the application of biotechnology;
CLO4	Demonstrate expertise in highly specialised and advanced research by the design, execution, and preparation of critical written and oral reports on, a substantial research investigation.
Skills, qualities and attributes	
By the end of the course you should be able to:	
CLO5	Deal with complex scientific issues with confidence, independence and originality;
CLO6	Continue to advance knowledge and understanding, and develop new skills in the application of biotechnology;
CLO7	Understand and adapt to future developments in biotechnology and their practical application;
CLO8	Communicate effectively with scientists and other personnel in management, research, and academic fields.
8.	Teaching and Learning Methods
<p>The principal means of delivering the syllabus is by lectures and guided reading, supported by the University's virtual learning portal and other electronic facilities; Seminars will also be used, in which you will be required to undertake independent work and examination of case studies for discussion and development with colleagues, academic staff and practitioners;</p> <p>You will be given extensive guidance and practice in written and oral presentation skills with appropriate feedback;</p> <p>You will also get extensive guidance and practice in the design, execution and reporting of research investigations with critical analysis, and this will be put into practice in the project;</p> <p>We enhance the delivery of the programme by using professional practitioners in the teaching team, and by encouraging your attendance at regular research seminars both within and outside the School;</p> <p>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 provide evidence when completing your CV, and when applying for jobs at the end of the course.</p>	
9.	Assessment Methods
<p>In the taught part of the course, you will be assessed by a variety of different types of course work, and by formal examination in at least one of the elected modules. The Research Project module will involve the design, implementation and reporting of a major research task. You will communicate your findings at the end of the project as a project thesis and you will present your findings as a poster to your peer, to members of the Course Team and external examiners. You will receive advice and training on data analysis and presentation skills in the induction week and in the Research Methods and Ethics module.</p> <p>You will be assessed in each module in a manner consistent with the aims, objectives and learning outcomes of the module. Assessed work will take one or more of the following forms:</p> <p><u>Research Project thesis</u></p> <p>This thesis assesses your ability to design and implement a course of research, and</p>	

communicate the findings to an informed audience in a comprehensive thesis, written in an appropriate scientific style.

Written assignment

This tests your writing skills. You are expected to consider the scientific problems of the assignment topic and the way in which they have been resolved; this must be fully referenced from the current literature.

Case studies

These are practical exercises to test your ability to apply your theoretical knowledge and skills in a given area. Here you will have to deal with complex issues in a systematic and creative way and show originality in solving problems posed in the case studies. Interpretative assignments are included in this category.

Oral presentation

This assesses your oral communication skills. You will be assessed on your ability to communicate cogently using appropriate visual aids. You will also be assessed on your ability to answer questions with knowledge and authority.

Poster presentation

This is a written poster display of the findings of your research project or of a specific taught module task. It tests your ability to synthesise arguments and present them in a highly condensed, accessible and pictorial form. You will need to defend the work verbally to members of the Course Team.

Laboratory report

This may take the form of a short report (laboratory file) or a long report (formal report) with extensive data analysis and interpretation.

Formal examination

Examinations are used as a means of ensuring your ability to integrate material and apply previously learned knowledge under time constraints.

Skills portfolio

The skills portfolio allows students to collate practical and transferable skills acquired over the course of the Master's degree in a format suitable for sharing with a future employer. Evidence of skills will be presented within the portfolio along with some reflection on progression and development throughout the course.

Computer based tests or computer aided learning packages may also be used as part of the Course assessment.

10. **Course structure and curriculum**

The MSc Biotechnology degree is a one year full time, two year part time or two year sandwich placement course. The duration of the academic year comprises 30 weeks divided into 3 terms with a number of modules delivered in term 1 and others in term 2, however the research project practical work continues usually until the end of July, with submission of the thesis in early September and presentation of the research by poster in late September. The full year consists of 180 credits of modules. All your modules are 20 credits, except for the 60 credit Research Project. An indicative course structure is given below.

Sandwich placement is optional and subject to availability. It is anticipated that the sandwich placement will be for one full year, starting after completion of the research project, with your return to NTU once the placement has finished when you are expected to complete the final piece of assessment which contributes to the Research Project module. For October starters the course will end here and for January starters you will then re-enrol to complete the final set of modules

and complete the course in the January. Following successful completion of the sandwich year and associated assessment you may be eligible for the award of Postgraduate Diploma in Professional Practice (PGDIPP).

Contact hours for a 20cp modules are typically around 50 hours, with a further 150 hours expected from you for directed and independent study.

You will be given a choice of research topics during the start of the second term, or may approach staff with ideas of your own. The topic of the research is agreed with individual academic staff supervisors, and is exploited for assessments linked to the *Research Methods & Bioethics* module, enabling you to have carried out background reading *etc.* in advance of the start of the project.

You may choose to study 60 cp of taught modules for a PGCert in Biotechnology, or take 120 cp of taught modules for the award of PGDip. If you are unsuccessful in completing the 180 cp required for MSc, you will be awarded PGCert if you have passed at least 60 cp, or PGDip if you have passed 120 cp.

A number of modules are shared by other MSc courses however the clear distinctiveness of this course lies in the combination of these modules and the chosen research project. A summary of the MSc Biotechnology course is given below.

Module	Core/ Option
Research Methods & Bioethics (20 cp) Development of skills in the use of software packages for statistical analysis of data; how to plan, write and deliver oral presentations, posters and research proposals.	C
Research Project (60 cp) A full-time research project in the area of biotechnology. The Masters Skills portfolio will be assessed as part of this module.	C
Cell Culture and Antibody Technology (20 cp) To provide an advanced knowledge and understanding of animal cell cultures and antibody technology.	C
Molecular Biology (20 cp) To consolidate knowledge of the molecular biology of prokaryotes and eukaryotes, and illustrate how genomes are mutated, and analysed and manipulated in the detection, study and therapy of disease.	C
Special Topics in Biotechnology (e) (20 cp) To provide knowledge and experience in a range of aspects of Biotechnology, with an emphasis on molecular approaches and techniques	C
Business and Enterprise 20cp Covering the concepts of entrepreneurship & innovation, start-up, survival & growth of a business (or project).	C
Microbial Diagnostics (20cp) Covering the rationale and process of designing modern microbial diagnostic assays	O

Techniques in Macromolecular Analysis (20 cp) Appraisal of modern techniques used to study and test biological principles.	O
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An indication of the course structure for MSc Biotechnology.

October- December	January - March	April - September
Research Methods & Bioethics (C, 20 cp)	Special Topics in Biotechnology (e) (C, 20 cp)	Research Project (C, 60 cp)
Cell Culture & Antibody Technology (C, 20 cp)	Business & Enterprise (C, 20 cp)	
Molecular Biology (C, 20 cp)	Microbial Diagnostics (O, 20 cp)	
	Techniques in Macromolecular Analysis (O, 20 cp)	

C: core modules; O: optional modules. The e-learning modules could be taken at any point within the year to increase flexibility and the actual course structure will depend upon the choices made by the student and are subject to timetabling. January start students will take the e-learning version of Research Methods & Bioethics which will commence in January.

11. **Admission to the course**

For admission to this course you will possess one of the following:

- an Honour's degree in a biological subject from a United Kingdom or equivalent University, the minimum degree category for entry to the course will normally be at least a 2ii, or its equivalent;
- Overseas applications will be based on the NARIC equivalent of the above (see below).
- a professional qualification of equivalent status;
- any other qualification and experience as the Admissions Panel shall deem equivalent in subject content and level of attainment.

Additionally, overseas students will normally be expected to have a level of English language capability demonstrated by attainment of IELTS to grade 6.5, or equivalent. Equivalent experience may include the successful completion of a non-UK degree in the English language or a significant period of residence/work placement in an English speaking country, for which evidence should be provided. This requirement is made clear to the students in the course literature before they apply for the course. Students who marginally fail to reach the above criteria are expected to attend a pre-term English language course for overseas students, organised by Nottingham Trent University. Those who wish to continue improving their proficiency in English are encouraged to continue attending in-session courses run by the University's English Language support Unit.

12. **Support for Learning**

We will work with you to ensure that you settle into your new academic environment and that your studies go well, and you will find that there are lots of people to support you at Nottingham Trent University.

All students at Nottingham Trent University have full access to Student Support Services. In addition, School based support networks are in place to offer you 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 Courses Manager, Course Leader, Module Leaders, and Course Tutors, takes responsibility for student support and guidance. The Module Leader will offer guidance and support to students taking each specific module.

Academic staff can be contacted by e-mail, telephone, letter, or in person.

As a new student you will experience a week long induction period at the commencement of the academic year. Induction will inform you about:

- Student Support Services at University, School and Course level;
- International Student Support
- 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.

During your induction you will be assigned a Course Tutor and informed about the best way to get in touch with your Course Leader and Module tutors. You will have regular time-tabled sessions with your Course Tutor, in small groups. Your group tutorials will help you to reflect on your approaches to study and make connections between modules, integrating material from across the curriculum and encouraging you to achieve your maximum potential. You will also have an opportunity to discuss and deal with any personal or course-related issues which may be affecting your studies and get advice on what support the university can offer. Course tutorials can also be used for personal development planning and skills development.

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

In terms of research project topic, you will have the opportunity to provide a ranked list of choices from those put up by academic staff for the courses. You will be advised to speak to individual staff and to carry out some initial research to determine which area you are most interested in. The project supervisor will act as the main avenue of support during the *Research Project*.

13. **Graduate destinations / employability**

There are a wide range of career opportunities within biotechnology. You will work with leading academics on your course, so you will have gained important academic and professional skills necessary to help you obtain employment in this field. At the end of the course, you will also have developed many transferable skills that will make you more attractive to potential employers in related areas of molecular bioscience and biotechnology. The Research Project and/or Placement will give you the skills you need to follow a career in research and development.

The University's Careers Service has an enviable reputation for helping our graduates find employment and offers individual consultations. Sessions are available to all students at NTU on CV writing and interview technique.

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' comments. 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:

The Masters degree is classified (Distinction, Commendation or Pass). The specific criteria for each classification will be set out in the course documentation and follow the grade based assessment scheme.

16.

Additional Information

Collaborative partner(s):	None
Course referenced to national QAA	Yes
Benchmark Statements:	
Course recognised by:	N/A
Date implemented:	October, 2014