Northeastern University London

BSc (Hons) Bioscience with Digital Technologies Programme Specification

Awarding Body	Northeastern University - London
Teaching Institution	Northeastern University London
Apprenticeship Standard	Laboratory Scientist (Degree) ST0626 Technician scientist ST0597
Relevant QAA Benchmark Statement	Biosciences (October 2019)
HECoS Code	100345
QAA Framework for Higher Education Qualification Level	Honours Level 6
Final Award	BSc (Hons) Bioscience with Digital Technologies DipHE Bioscience with Digital Technologies
Exit Awards	CertHE Bioscience with Digital Technologies DipHE Bioscience with Digital Technologies
Programme Code	NCHBSDTDA
Approved Start Dates	October 2021
Language of Instruction	English
Language of Assessment	English
Mode of Study	Part-time blended learning; work related learning
End point assessment	Non-integrated
End point assessment organisations	tbc
Approval effective from	July 2021
Re-approval due	July 2026

Programme Overview

The BSc (Hons) Bioscience with Digital Technologies is a work related learning programme that integrates academic learning at degree level with on-the-job practical training to provide a holistic programme of education and training to meet the bioscience skills needs of employers now and in the future. The programme adheres to the level 6 Laboratory Scientist (ST0626) and Level 5 Technician Scientist (ST0597) apprenticeship standards (the latter up to stage 2).

Learners may study the programme as an *apprenticeship* or *non-apprenticeship*. The programme is identical for both streams, only differing in that the apprenticeship stream will receive an additional apprenticeship completion certificate. For both streams, the learner must be in employment, or be sponsored by an employer, with duties aligned to the level 6 Laboratory Scientist or level 5 Technician Scientist apprenticeship standard. Learners whose job role aligns to the level 6 laboratory science (degree) apprenticeship will study for a full Batchelor's degree (stage 1 – 3), whilst learners whose job role aligns to the level 5 technician science apprenticeship will study for a DipHE (stage 1 – 2). Both streams will follow the same programme at stages 1 and 2.

This work related learning programme will develop professional practice, contextualised in the workplace using industry standard approaches and technologies that are shaped by modern organisations. Learners studying on this programme are employed, or sponsored by an Employer, (Hiring Business) and are working in a *laboratory-based bioscience role*.[1]

The learner will study with Northeastern University London (Provider) for approximately 60 days a year (or Stage) – i.e. one day per week for 42 weeks each year, and up to three five-day 'bootcamps' in any given year; for the duration of the three-year programme.

Additionally, the learner and employer will commit to a further two days per week, for 42 weeks each year, for provider-guided work related training. Learners will study 120 credits per year and will be considered part-time learners by Northeastern University London. Each course, typically 15 credits, is assessed by a range of activities aligned to industry norms, i.e. almost all assessments relate to workplace activities that are expected in a bioscience-related occupation. The content, and consequently the learning outcomes and methods of assessment, vary between courses. Where possible, assessments will be undertaken in the workplace.

The programme begins with a non-credit bearing one-week 'work-ready induction' to the programme covering essential study skills and fostering collegiality with group presentations. The first course is 'Business Fundamentals', introducing learners to the contemporary world of global business, followed by 'Applied Cell Biology', which introduces structure and function of eukaryotic and prokaryotic cells. Next, the programme introduces 'Biochemistry and Molecular Biology', 'Drug Discovery and Development (Including Pharmacology)' and 'The Regulatory Environment'. The year one programme dives deeper with 'Maths, Statistics, Experimental Protocol and Analysis', which examines the mathematical and statistical principles that are an essential component of the professional laboratory/technician scientist's knowledge and skills. 'Human Physiology and Pathophysiology' examines the normal functions and mechanisms of the human organism and year one, or stage one, concludes with a two-week intensive 'Data Science, Data Visualisation and Communication' face-to-face

[1]A learner must be in a role that provides the opportunities to gain the knowledge, skills and behaviours stated in the Level 6 Laboratory Scientist (Degree) Apprenticeship Standard or Level 5 Technician Scientist Apprenticeship Standard; the pathway to a competent Laboratory/Technician Scientist.

bootcamp where learners will gain hands-on experience of a mini data analysis project aligned to the bioscience sector.

Year two, or Stage two, starts by introducing the project management lifecycle in ‘IT Project Management’ before examining processes of infection and the human immune response in ‘Infection and Allergy (Including Microbiology)’. Learners study how raw data is collected, stored, cleansed and interrogated in ‘Data Analytics’ ,followed by advances in ‘Cell and Gene Therapy’ before considering the wider economic, ethical and societal contexts of bioscience and health in ‘Industrialisation, Manufacturing and Health Economics’.The proceeding ‘Laboratory-based Residential’ is an intensive two-week bootcamp where learners will gain hands-on practice of a range of experimental techniques. Year two (and the level 5 technician scientist apprenticeship) finishes with a 30 credit ‘Data Driven Experimental Design Project’ conducted in the workplace.

For learners following the level 6 Laboratory Scientist (Degree) Apprenticeship, year three starts with reflective practice in ‘Critical Thinking and Ethics’. Learners examine advances in digital science in ‘Digital Health and AI’, followed by ‘Frontier Topics in Bioscience’, taught through the lens of global case study analysis. ‘Business and Change Management’ examines digital transformation and change and the programme, and year three culminates with an extensive 24-week laboratory science research project.

Dedicated Work Related Learning Tutors/Advisors will undertake regular workplace visits (approximately every six/eight weeks) and provide supplementary support.

Structure of the Bioscience with Digital Technologies Programme (360 Credits)

The work related learning programme is taught at undergraduate level.

Stage 1 (Level 4)

‘Work ready’ induction (0 credits)

Compulsory Courses

NCHNAP443 Business Fundamentals (15 credits)

NCHNAP486 Applied Cell Biology (15 credits)

NCHNAP487 Biochemistry and Molecular Biology (15 credits)

NCHNAP489 Drug Discovery and Development (Including Pharmacology) (15 credits)

NCHNAP492 The Regulatory Environment (15 credits)

NCHNAP491 Maths, Statistics, Experimental Protocol and Analysis (15 credits)

NCHNAP490 Human Physiology and Pathophysiology (15 credits)

NCHNAP488 Data Science, Data Visualisation and Communication Bootcamp (15 credits)

Stage 2 (Level 5)

Compulsory Courses

NCHNAP555 IT Project Management (15 credits)

NCHNAP5110 Infection and Allergy (Including Applied Microbiology) (15 credits)

NCHNAP558 Data Analytics (15 credits)

NCHNAP5107 Cell and Gene Therapy (15 credits)

NCHNAP5109 Industrialisation, Manufacturing and Health Economics (15 credits)

NCHNAP5111 Laboratory-based Residential (15 credits)

NCHNAP5108 Data Driven Experimental Design Project (30 credits)

Stage 3 (Level 6)

‘End point assessment and project’ induction

Compulsory Courses

NCHAP6133 Critical Thinking and Ethics (15 credits)

NCHAP6134 Digital Health and Artificial Intelligence (15 credits)

NCHAP6135 Frontier Topics in Bioscience (15 credits)

NCHAP684 Business and Change Management (15 credits)

NCHAP6136 Laboratory Science Capstone Project (60 credits)

Entrance Requirements

The learner will need to be in employment with, or sponsored by, a hiring business, with responsibilities to be aligned to the level 6 Laboratory Scientist (Bachelor's degree) or level 5 Technician Scientist apprenticeship standard (DipHE).

Entry requirements are agreed then set, based on numerous factors including availability of additional on-the-job support, by both the employer or sponsor and provider. As such, entrance requirements may vary. Learners are selected based on their application and an assessment process which is tailored to the learner’s employment/sponsored employment position.

Typically, employers require:

- Three A levels (or equivalent at BBB or above) including Biology
- At least Grade 4/C GCSE Maths, English and IT

Some applicants may not have traditional qualifications as listed above, and have prior learning and skills developed from the workplace, these will be considered on a case-by- case basis.

Where a learner will be studying the programme as an apprentice, they will also need to meet the government's eligibility criteria:

- Have been a UK/EU/ESS resident for the past three years or more prior to starting the programme.
- Have left full-time education prior to the start date of the apprenticeship.
- Be aged at least 16 years old to meet government funding criteria.

Recognition of Prior Learning

Where a learner will be studying the programme as an apprentice, and is eligible to apply for the recognition of prior learning on the basis of certificated or experiential learning, this will be considered in the Initial Needs Analysis, as per Education Skills and Funding Agency (ESFA) Funding Rules, and will take due consideration of the Northeastern University London's Recognition of Prior Learning and Credit Transfer Policy.

Aims of the Programme

The overall aims of the programme are to:

- Offer specialist Bachelor's degree/PGDip level study that underpins the Level 6 Laboratory Scientist (Degree) and Level 5 Technician Scientist Apprenticeship Standards.
- Offer a programme of study that meets the needs and expectations of businesses and organisations and supports the career development of professional laboratory-based bioscientists.
- Provide flexible and broad access to an incrementally structured learning experience that is designed to encourage and enable a diverse range of learners to work within a range of organisations and businesses.
- To support the development of specialist bioscience and digital transformation skills that will be valued and supported within work related contexts.
- Develop a good understanding of the principles, theories and technologies that enable the professional practice of laboratory and technician bioscientists.

- Provide learners with a rich and varied academic experience that is designed to support the integration of theory and practice within the workplace.
- Instil a strong professional work ethic that encourages independence, empathy, self-reflection and advanced communication skills that pertain to the role of a bioscientist in a professional role.

Programme Learning Outcomes

Knowledge and Understanding

A learner will be able to:

K1c Demonstrate a systematic understanding and detailed knowledge of the underlying scientific principles, theories and concepts of modern bioscience, life science and health, appreciating the uncertainty, ambiguity and limits of knowledge and how to apply theoretical knowledge to experimental design.

K2c Demonstrate a systematic understanding and detailed knowledge of safe and reproducible laboratory practice, experimental and analytical techniques, of which some are at the forefront of the discipline, and an ability to accurately improve laboratory techniques using theoretical knowledge and data mining within an organisation to improve its processes, operations and outputs.

K3c Demonstrate a systematic understanding and critical knowledge of the use of mathematics, statistics, data analysis, digital technologies and research methodologies to evaluate results, design experiments and draw evidence based conclusions.

K4c Demonstrate a systematic understanding and detailed knowledge of the business environment, ethics, the regulatory environment, working with stakeholders, managing change, effective communication, project management and understanding how teams work effectively to produce successful project solutions and outcomes.

Subject Specific Skills

A learner will be able to:

S1c Use and promote a range of scientific approaches, quality standards and safe working practices to support reproducible laboratory investigations and experimentation to solve problems relevant to the workplace.

S2c Critically evaluate scientific experimentation approaches using numerical and statistical data analysis, data mining and scholarly reviews and use

creative thinking to challenge assumptions and achieve innovative solutions for a range of organisational scenarios.

S3c Work autonomously to analyse, interpret and robustly evaluate scientific data, communicate ideas, problems and solutions and comply to business rules with regard to record keeping, data integrity, reproducibility and confidentiality.

S4c Take responsibility for the planning, prioritisation and timely execution of a range of technical projects to meet scientific objectives and business rules.

Transferable and Professional skills

A learner will be able to:

T1c Exercise initiative and personal responsibility in professional development and life-long learning, using reflective practice and actively seeking the views of others.

T2c Apply analytical, critical-thinking, problem-solving and time-management skills to work creatively, autonomously and effectively to develop innovative and workable solutions to problems in complex and unpredictable contexts.

T3c Communicate clear arguments, critical analysis and organisational vision to specialist and non-specialist audiences.

T4c Effectively manage diverse stakeholder relationships, change management, work effectively with others and promote inclusivity, diversity, professionalism, integrity and ethics.

All of the above learning outcomes are mapped to the relevant QAA Subject Benchmark threshold statements and Apprenticeship Standard.

Map of Courses to Learning Outcomes

Knowledge and Understanding	K 1 a	K 1 b	K 1 c	K 2 a	K 2 b	K 2 c	K 3 a	K 3 b	K 3 c	K 4 a	K 4 b	K 4 c
FHEQ Level 4												
NCHNAP443 Business Fundamentals	X			X			X					
NCHNAP486 Applied Cell Biology	X			X			X					
NCHNAP489 Drug Discovery and Development (Including Pharmacology)	X						X			X		
NCHNAP492 The Regulatory Environment	X			X						X		
NCHNAP487 Biochemistry and Molecular Biology	X			X						X		
NCHNAP491 Maths, Statistics, Experimental Protocol and Analysis	X			X			X					
NCHNAP490Human Physiology and Pathophysiology	X			X						X		
NCHNAP488 Data Science, Data Visualisation and Communication	X						X			X		
FHEQ Level 5												
NCHNAP555 IT Project Management		X			X			X				
NCHNAP5110 Infection and Allergy (Including Applied Microbiology)		X			X						X	
NCHNAP558 Data Analytics		X			X			X				
NCHNAP5109 Industrialisation, Manufacturing and Health Economics		X			X						X	
NCHNAP5107 Cell and Gene Therapy		X			X						X	
NCHNAP5111 Laboratory-based Residential		X			X			X				
NCHNAP5108 Data Driven Experimental Design Project		X			X			X			X	
FHEQ Level 6												
NCHNAP6133 Critical Thinking and Ethics			X						X			X
NCHNAP6134 Digital Health and Artificial Intelligence			X						X			X
NCHNAP6135 Frontier Topics in Bioscience			X			X			X			
NCHNAP684 Business and Change Management			X			X						
NCHNAP6136 Laboratory Science Capstone Project			X			X			X			X

Subject Specific Skills	S 1 a	S 1 b	S 1 c	S 2 a	S 2 b	S 2 c	S 3 a	S 3 b	S 3 c	S 4 a	S 4 b	S 4 c
FHEQ Level 4												
NCHNAP443 Business Fundamentals	X			X			X					
NCHNAP486 Applied Cell Biology	X			X						X		
NCHNAP489 Drug Discovery and Development (Including Pharmacology)				X			X			X		
NCHNAP492 The Regulatory Environment	X			X						X		
NCHNAP487 Biochemistry and Molecular Biology	X			X			X					
NCHNAP491 Maths, Statistics, Experimental Protocol and Analysis	X			X			X					

NCHNAP490Human Physiology and Pathophysiology	X			X						X		
NCHNAP488 Data Science, Data Visualisation and Communication	X						X			X		
FHEQ Level 5												
NCHNAP555 IT Project Management		X			X			X				
NCHNAP5110 Infection and Allergy (Including Applied Microbiology)					X			X				
NCHNAP558 Data Analytics		X			X							
NCHNAP5109 Industrialisation, Manufacturing and Health Economics								X			X	
NCHNAP5107 Cell and Gene Therapy					X			X			X	
NCHNAP5111 Laboratory-based Residential		X						X			X	
NCHNAP5108 Data Driven Experimental Design Project		X			X			X			X	
FHEQ Level 6												
NCHNAP6133 Critical Thinking and Ethics			X			X						
NCHNAP6134 Digital Health and Artificial Intelligence						X			X			X
NCHNAP6135 Frontier Topics in Bioscience						X			X			
NCHNAP684 Business and Change Management			X			X						
NCHNAP6136 Laboratory Science Capstone Project			X			X			X			X

FHEQ Level 6 (B

Transferable and Professional Skills (Behaviours)	B1a	B1b	B1c	B2a	B2b	B2c	B3a	B3b	B3c	B4a	B4b	B4c
FHEQ Level 4												
NCHNAP443 Business Fundamentals	X			X			X					
NCHNAP486 Applied Cell Biology	X			X								
NCHNAP489 Drug Discovery and Development (Including Pharmacology)	X			X			X					
NCHNAP492 The Regulatory Environment	X									X		
NCHNAP487 Biochemistry and Molecular Biology	X			X			X					
NCHNAP491 Maths, Statistics, Experimental Protocol and Analysis	X			X			X					
NCHNAP490Human Physiology and Pathophysiology	X			X			X					
NCHNAP488 Data Science, Data Visualisation and Communication				X			X			X		
FHEQ Level 5												
NCHNAP555 IT Project Management		X			X			X				
NCHNAP5110 Infection and Allergy (Including Applied Microbiology)		X						X				
NCHNAP558 Data Analytics		X			X			X				
NCHNAP5109 Industrialisation, Manufacturing and Health Economics		X			X							
NCHNAP5107 Cell and Gene Therapy		X			X			X				
NCHNAP5111 Laboratory-based Residential					X			X			X	
NCHNAP5108 Data Driven Experimental Design Project		X			X							

FHEQ Level 6											
NCHNAP6133 Critical Thinking and Ethics			X			X			X			
NCHNAP6134 Digital Health and Artificial Intelligence			X						X			X
NCHNAP6135 Frontier Topics in Bioscience						X			X			
NCHNAP684 Business and Change Management			X			X						
NCHNAP6136 Laboratory Science Capstone Project			X			X			X			X

Teaching and Learning Strategies

Strategies

The programme is studied through blended work-related learning, over a 3-year period, and is delivered through an online interactive virtual learning environment (VLE).

The achievement of the Programme Learning Outcomes is supported primarily through an extensive range of e-learning interactions and materials. Delivery methods include:

- Lectures (synchronous face-to-face or via over the web technology, and pre-recorded)
- Seminars for small group discussion (including online discussion)
- Informal discussion groups (including online discussion)
- Assessments
- Practical laboratories
- Links to related reading material
- Individual learning plans (ILP)
- Online presentations
- Participation in online forums
- Consolidation and revision sessions
- Independent study and research
- Final project

Regular in-depth formative feedback is provided to the learner, with advice and guidance to support their achievement in summative assessments. The programme aims to progressively enhance data science knowledge and skills - as well as maths, English and communication skills - as they practice and apply their newly found knowledge and skills in the workplace. Regular tri-partite reviews between the learner (apprentice), their apprenticeship advisor (provider) and workplace line manager (employer/sponsor) formally monitor and evaluate the learner’s progress.

The blended-learning work related programme ensures that learners have the opportunity to explore their subject in an incrementally structured, well-managed and

appropriate manner. It develops the knowledge, core and subject-specific skills, and transferable skills, required by learners and enhances their confidence. The combination of academic study and work-based learning is a key feature of the programme. Practical and theoretical experiences in the workplace, in tandem with their academic studies, develop and enhance the learner's specialist knowledge, skills and behaviours.

Assessment tasks increase in complexity and level of demand from year (or Stage) one, where introductory tasks assess the demonstration of knowledge, skills and abilities and establish the foundations of learning. Whereas, in the final year (Stage three) of the programme, the synthesis of advanced knowledge, understanding, critical thinking and professional skills, are assessed to meet the expectations of a degree level apprenticeship.

Learners are supported to acquire and practice a wide range of transferable skills. These include problem solving, analysis, strategic thinking and interpersonal and communication skills. Learners will be effective team players within their work environments and fully participate in presentation work during their studies. Importantly, they are also encouraged to balance these cooperative interpersonal skills with responsibilities and self-development within the apprenticeship. These graduate qualities are supported throughout the programme from an initial rigorous non-credit one-week block of classroom teaching (bootcamp), that includes transferable skills such as time management and presentation skills, needed to become an effective team member in the workplace, as well as an introduction to the demands and challenges of the apprenticeship, basic study skills and needs/expectations of employers.

Induction for all new learners includes a welcome to Northeastern University London by the Assistant Vice President for Digital Innovation & Enterprise Learning; introduction to key personnel including the Head of Business Development, Head of Operations, Programmes Director; Course Leaders; and Business Development Managers to introduce learners to the programme they are about to embark upon. There are also sessions on library services, IT and facilities, and an induction from the Quality Team.

The programme is designed to progress steadily over the three years and develop learners' conceptual sophistication through cumulative experience and knowledge. The final project will allow learners to develop their thinking in collaboration with an academic supervisor.

Northeastern University London recognises and has embedded the expectations of current equality legislation, by ensuring that the programme is as accessible as possible by design.

Additional alternative arrangements for learners with Inclusive Learning Plans (IncLPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

Applicants with a disability are encouraged to declare their disability during the application process under the Initial Needs Analysis. Once declared, Student Support

and Development (SSD) will work with the learner to agree a support plan for the duration required. This plan will form part of the Commitment Statement and will be reviewed at the tri-partite reviews every six/eight weeks to confirm that this support is effective.

Academic Services facilitates all academic and learner services, and oversees learner wellbeing; careers advice is provided for learners via Northeastern University London Careers Team.

Assessment

Course are assessed in a variety of ways including:

Formative

- Tests or quizzes
- Essays or reports
- Short answers and problem sets
- Oral presentations/debates/discussions

Summative

- Computer-based examination
- Written assignment
- Portfolio
- Dissertation
- Practical skills assessment
- Oral assessment
- Presentation
- Set exercise
- Project

Appendix C contains the programme structure and assessment summary.

Assessment Regulations

The assessment regulations can be found on the Northeastern University London website.

Awards

This programme is studied over 36 months as a blended, work related learning programme, whereby the learner will study with the provider for approximately 60 days a year (or Stage) – i.e. one day per week for 42 weeks each year, and up to three five-day ‘bootcamps’ in any given year for the duration of the three-year programme; this is termed ‘off-the-job’ training. Additionally, the learner and employer will commit to a further two days per week, for 42 weeks each year, for provider-guided work related tasks and training. All three years (Stages) are worth 120 credits (=1200 hours of learning time), comprising multiple courses. This allows six weeks for annual leave. The final 60 credits of the Batchelor’s degree (=600 hours of learning time) will comprise the workplace project, spanning 24 weeks.

Learners must successfully complete each course in order to be awarded the specified number of credits for that course. One credit corresponds to approximately ten hours of 'learning time' (including all online and face-to-face delivery, all private study and research, and relevant aspects of on-the-job learning). Thus obtaining 120 credits in a year (or Stage) requires 1,200 hours of overall learning time.

Learners must complete the required amount of off the job training hours which equates to a minimum of six hours per week for those who work at least 30 hours per week. The total hours required is calculated by the number of practical training weeks of the course x six hours. Learners must complete the minimum required hours to complete the apprenticeship.

Each course, and indeed the overall programme, is designed to be at a specific level. The programme comprises courses at Level 4, 5 and 6 leading to successful completion of an undergraduate degree level award. Compulsory courses are core to the programme and must be successfully taken by all learners studying the programme. Learners must attend face-to-face courses/bootcamps.

Where a learner fails a course(s) due to illness or other mitigating circumstances, such failure may not be compensated or condoned.

To be eligible for the award of an Honours degree, learners must obtain 360 credits, where 120 of which must be at Level 5, and 120 credits at Level 6.

Learners successfully completing Stage 1 of the programme who do not successfully complete Stage 2 will be eligible for the award of the Certificate (CertHE) in Bioscience with Digital Technologies. Learners successfully completing Stage 1 and Stage 2 of the programme (level 5 technician scientist apprenticeship) or who have not completed Stage 3 of the Batchelor’s degree programme will be eligible for the award of the Diploma (DipHE) in Bioscience with Digital Technologies. The pass mark for a course is 40%, and all component assessments must be passed.

Classifications

Learners are graded using Honours degree classifications for English universities, and follows the QAA (Quality Assurance Agency for Higher Education) Code of Practice for the Assurance of Academic Quality and Standards in Higher Education. The national degree award outcomes are shown below with apprenticeship grading equivalence.

Degree award classification	Grading equivalence	Marks level (%)
First class honours (1st)	Distinction	69.5% or more
Second-class honours, upper division (2i)	Merit	59.5% – 69.4%
Second-class honours, lower division (2ii)	Pass	49.5% - 59.4%
Third-class honours (3rd)	Pass	39.5% - 49.4%

Exemptions from Northeastern University London's Academic Quality Framework

None.

Special Provisions for Professional Statutory and Regulatory Body

None.

Quality Evaluation and Enhancement

Review and Evaluation Mechanisms

Northeastern University London has robust procedures, as described in AQF4 Programme and Course Approval and Modifications and AQF5 Annual Monitoring and Reporting, in place to assure the quality of the programme's development, delivery and management, alongside the systematic monitoring, ongoing review and enhancement of all programmes awarded by Northeastern University London. Enhancements are made as necessary to ensure that systems remain effective and rigorous.

Northeastern University London utilises constructive feedback from a variety of sources, internal and external, to inform its decision-making process to enhance the programme and the learner experience. These feedback sources include:

- Annual programme reports, written by the Programmes Director, are prepared in order to enhance individual programmes and to plan ahead.
- Annual Examiner reports are prepared by independent External Examiners to confirm that a programme has been assessed in accordance with the approved documentation and that the learner performance meets the appropriate academic standards.
- Education and Skills Funding Agency Employer and Apprentice surveys.
- Formal learner feedback mechanisms consist of course and programme learner satisfaction questionnaires and Apprentice Voice Committee.
- Informal learner feedback is also valued by Northeastern University London and this can take the form of learners talking to their Apprenticeship Advisor (which incorporates the personal tutor role), Lecturers, professional staff, or elected learner representative.

In addition to academic progress monitoring, progression also includes checking that the learner is achieving planned levels of off-the-job learning required by the apprenticeship as set out in the Commitment Statement. This six/eight-weekly discussion between the apprenticeship advisor, line manager and learner will also confirm whether the learner is keeping pace with their plan of learning at work, and is meeting the competency progression points as part of their apprenticeship.

Learner attendance at scheduled learning opportunities, as well as monitoring periods of off- the-job training, is monitored through the use of an online Learner Management System.

About this Document

Title: BSc (Hons) Bioscience and Digital Technologies **Approved by: Academic Board** **Location Academic handbook/programme specifications and handbooks/undergraduate programme specifications/work related learning**					
Version number	Date approved	Date published	Owner	Proposed next review date	Modification (As per AQF4) & category number
3.0	October 2023	October 2023	Dr Alexandros Koliousis	Sep 2026	Category 2: Regulatory change Category 1: Corrections/clarifications to documents which do not change approved content or learning outcomes
2.0	October 2022	November 2022	Professor Scott Wildman	Sep 2026	Category 2: Regulatory change Category 1: Corrections/clarifications to documents which do not change approved content or learning outcomes
1.0	Sep 2021	Sep 2021	Professor Scott Wildman	Sep 2026	
Referenced documents	Recognition of Prior Learning and Credit Transfer Policy; AQF4 Programme and Course Approval and Modifications; AQF5 Annual Monitoring and Reporting; AQF7 Academic Regulations for Degree Apprenticeships				
External Reference Point(s)	Laboratory Scientist (Degree) Apprenticeship Standard ST0626; Technician Scientist Apprenticeship ST0597; QAA Subject and Benchmark Statement Biosciences (Oct 2019); Education Skills and Funding Agency (ESFA) Funding Rules; Institute for Apprenticeships & Technical Education Assessment Plan; QAA (Quality Assurance Agency for Higher Education) Code of Practice for the Assurance of Academic Quality and Standards in Higher Education				

Disclaimer

Northeastern University London has checked the information provided in this Programme Specification and will aim to deliver this programme in keeping with this Programme Specification.

However, changes to the programme may sometimes be required arising from annual monitoring, student feedback, and the review and update of courses and programmes. Where this activity leads to significant changes to courses and programmes there will be prior consultation with students and others, wherever possible, and Northeastern University London will take all reasonable steps to minimise disruption to students. It is also possible that Northeastern University London may not be able to offer a course or programme for reasons outside of its control, for example, due to the absence of a member of staff or low student registration numbers. Where this is the case, Northeastern University London will aim to inform applicants and students as soon as possible, and where appropriate, will facilitate the transfer of affected students to another suitable programme.

Copyright

Appendix A – Map to QAA Subject Benchmark

Threshold Standards	Learning Outcome
Core biosciences knowledge, understanding and skills	
A broadly based core covering the major elements defined by the particular course and providing the wider context required for the subject area, together with specialised in-depth study of some aspects of the specialist subject area. Whatever the degree course, there is a need for an interdisciplinary and multidisciplinary approach in advancing knowledge and understanding of the processes and mechanisms of life, from molecular to cellular, and from organism to ecosystem	K1-K4, S1-S4
Engagement with the essential facts, major concepts, principles and theories associated with the chosen subject area, including knowledge of the processes and mechanisms that have shaped the natural world in terms of, for example, the spread of time from the geological to the present and of complexity from the environmental to the subcellular, including consideration of interactions between living systems and human activities	K1-K4, S1-S4
Competence in the core experimental and/or survey skills appropriate to the subject under study	K1-K4, S1-S4
understanding of information and data, and their setting within a theoretical framework, accompanied by critical analysis and assessment to enable understanding of the subject area as a coherent whole	K1-K4, S1-S4
familiarity with the terminology, nomenclature and classification systems, as appropriate	K1-K4, S1-S4
practical and theoretical methods of acquiring, interpreting and analysing biological information with a critical understanding of the appropriate contexts for their use through the study of texts, original papers, reports and data sets	K1-K4, S1-S4
awareness of the contribution of their subject to the development of knowledge about the diversity of life and its evolution	K1-K4, S1-S4
knowledge of a range of communication techniques and methodologies relevant to the particular subject, including data analysis and the use of statistics (where this is appropriate)	K1-K4, S1-S4, T3
engagement with some of the current developments in the biosciences and their applications, and the philosophical and ethical issues involved	K1-K4, S1-S4
awareness of the contribution of biosciences to policy and other debates and controversies	K1-K4, S1-S4

understanding of how biosciences knowledge forms the basis for informed concern about the quality and sustainability of life	K1-K4, S1-S4
awareness of the boundaries and limitations of their learning	K1-K4, S1-S4
an appreciation of how their skills and learning contribute to the many careers to which graduates will be progressing	K1-K4, S1-S4, T1-T4
an appreciation of the complexity and diversity of life processes through the study of organisms, their molecular, cellular and physiological processes, their genetics and evolution, and the interrelationships between them and their environment	K1-K4, S1-S4
the ability to read and use appropriate literature with a full and critical understanding, while addressing such questions as content, context, aims, objectives, quality of information, and its interpretation and application	K1-K4, S1-S4
the capacity to give a clear and accurate account of a subject, marshal arguments in a sophisticated way and engage in debate and dialogue both with specialists and non-specialists, using appropriate scientific language	K1-K4, S1-S4
critical and analytical skills, including a recognition that statements should be tested and that evidence is subject to assessment and critical evaluation	K1-K4, S1-S4
the ability to employ a variety of methods of study in investigating, recording and analysing material	K1-K4, S1-S4
the ability to think independently, set tasks and solve problems.	K1-K4, S1-S4, T1-T4
Intellectual Skills	
recognise and apply subject-specific theories, paradigms, concepts or principles (for example the relationship between genes and proteins, or the nature of essential nutrients in microbes, cells, plants and animals)	K1-K4, S1-S4
analyse, synthesise and summarise information critically, including published research or reports	K1-K4, S1-S4, T1-T4
obtain and integrate several lines of subject-specific evidence to formulate and test hypotheses	K1-K4, S1-S4, T1-T4
apply subject knowledge and understanding to address familiar and unfamiliar problems	K1-K4, S1-S4, T1-T4
recognise the moral and ethical issues of investigations and appreciate the need for ethical standards and professional codes of conduct.	K4, S4, T4

Practical Skills	
demonstrate competence and progressive development in the basic and core experimental skills appropriate to the course of study	K1-4 S1-4
design, plan, conduct and report on investigations, which may involve primary or secondary data (for example from a survey database)	K1-K4, S1-S4, T1-T4
obtain, record, collate and analyse data using appropriate techniques in the field and/or laboratory, working individually or in a group, as is most appropriate for the subject under study	K1-K4, S1-S4, T1-T4
undertake field and/or laboratory investigations of living systems in a responsible, safe and ethical manner.	K1-K4, S1-S4, T1-T4
comply with health and safety policies, understand Good Laboratory Practice, 3 risk assessment, and Control of Substances Hazardous to Health assessments	K2, S2
recognise and explain the importance of quality control and quality assurance	K2, S2
recognise and explain the need for procedures for obtaining informed consent and appreciate the underlying ethical issues, including respect for the rights of access, for example, in field work or in order to map the genes of a community, family or group of plants or animals, including humans	K2, S2
demonstrate an understanding of the ethical and other issues relating to animal welfare	K2, S2
explain and justify the impact of investigations on the environment, on the organisms or subjects under investigation, and on other stakeholders.	K2, S2
Analytical and Data Interpretation Skills	
use and interpret a variety of sources of information: textual, numerical, verbal, graphical	K1-K4, S1-S4,
carry out sample selection; record and analyse data in the field and/or the laboratory; ensure validity, accuracy, calibration, precision, replicability and highlight uncertainty and possible bias during collection	K1-K4, S1-S4,
prepare, process, interpret and present data, using appropriate qualitative and quantitative techniques, statistical courses, spreadsheets and courses for presenting data visually	K1-K4, S1-S4,
solve problems by the most appropriate method.	K1-K4, S1-S4,

QAA benchmark statements can be found here.

Appendix B

Map to Level 6 Laboratory Scientist (Degree) Apprenticeship Standard

Course name:	BF	ACB	DDD	TRE	BMB	MSEPA	HPP	DCDVCB	ITPM	IA	DA	IMHE	CGT	LBR	DDEDP	CTE	DHAI	FTB	BCM	LSCP
Knowledge																				
1		X	X	X	X		X			X			X	X			X			X
2		X	X	X	X	X	X	X		X	X	X	X	X		X	X	X		X
3		X	X		X	X	X			X		X	X	X		X	X			X
4		X	X		X	X	X			X			X	X	X		X			X
5						X		X			X			X	X					X
6						X		X			X				X	X		X		X
7								X	X						X				X	X
8	X							X	X		X	X			X				X	X
9			X	X										X	X	X				X
10	X			X											X	X			X	X
Skills																				
11		X	X		X		X			X	X		X	X	X		X	X		X
12								X		X	X			X	X	X	X			X
13						X		X			X			X	X					X
14						X	X				X			X	X	X				X
15				X							X			X	X	X				X
16				X					X					X	X				X	X
17						X					X				X	X				X
18									X						X					X
19		X			X	X	X			X		X	X	X	X		X	X		X
20				X											X				X	X
21						X	X		X						X				X	X
Behaviours																				
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23				X				X							X	X			X	X
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
25								X	X					X	X	X			X	X

Course name:	BF	ACB	DDD	TRE	BMB	MSEPA	HPP	DCDVCB	ITPM	IA	DA	IMHE	CGT	LBR	DDEDP	CTE	DHAI	FTB	BCM	LSCP
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
27	X								X						X				X	X
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Map to Level 5 Technician Scientist Apprenticeship Standard

Course name:	BF	ACB	BMB	DDD	TRE	MSEPA	HPP	DCDVCB	ITPM	IAA	DA	CGT	IMHE	LBR	DDEDP
Knowledge															
1		X	X	X	X	X	X			X		X	X	X	
2		X	X	X			X			X		X		X	X
3		X	X	X			X			X		X		X	X
4														X	X
5		X	X	X		X	X			X		X	X	X	
6						X		X			X		X	X	X
7						X	X	X			X		X	X	X
8								X	X						X
9					X				X		X				X

Course name:	BF	ACB	BMB	DDD	TRE	MSEPA	HPP	DCDVCB	ITPM	IAA	DA	CGT	IMHE	LBR	DDEDP
10				X	X									X	X
11	X				X							X	X	X	X
12	X							X	X						X
13				X								X		X	X
14			X		X									X	X
15			X	X				X		X		X	X	X	X
16			X	X		X					X			X	X
17	X				X				X				X	X	X
18					X				X		X			X	X
19			X					X	X		X			X	X
Skills															
1						X									X
2		X	X	X			X		X	X	X	X		X	X
3														X	X
4						X								X	X
5				X				X				X		X	X
6	X				X				X		X			X	X

BSc (Hons) Bioscience with Digital Technologies

Course name:	BF	ACB	BMB	DDD	TRE	MSEPA	HPP	DCDVCB	ITPM	IAA	DA	CGT	IMHE	LBR	DDEDP
7		X	X	X	X		X		X	X	X	X			X
8			X			X		X			X	X	X	X	X
9		X	X	X	X	X	X	X		X		X	X	X	X
10			X					X		X		X		X	X
11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12					X				X						X
13		X	X	X	X	X	X		X	X	X	X		X	X
14					X	X		X							X
15		X	X	X			X			X		X		X	X
Behaviours															
1	X				X			X	X				X	X	X
2								X	X					X	X
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4					X									X	X
5	X												X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Appendix C – Exit Awards

Certificate in Higher Education

In order for a learner to be awarded a Certificate in Higher Education (Cert HE), they are required to have achieved **120 Level 4 Credits**, in accordance with the NCH and Northeastern's Academic Regulations for Taught Awards.

Learning Outcomes for Award of Certificate in Higher Education

Knowledge and Understanding

A learner will be able to:

K1a Understand the underlying scientific principles, theories and concepts of modern bioscience, life science and health.

K2a Understand how to perform safe laboratory practice, experimental and analytical techniques.

K3a Understand the underlying principles of mathematics, statistics, data analysis and digital technologies used to evaluate results and draw evidence based conclusions.

K4a Understand the business environment, ethics and the regulatory environment.

Subject-specific Skills

A learner will be able to:

S1a Use established scientific approaches, quality standards and safe working practices to solve problems.

S2a Evaluate scientific experimentation approaches using numerical and statistical data analysis and data mining approaches.

S3a Analyse, interpret and evaluate scientific data, communicate ideas and comply with business rules with regard to record keeping, data integrity and confidentiality.

S4a Plan and execute a range of technical projects to meet scientific objectives and business rules.

Transferable and professional Skills

A learner will be able to:

T1a Take personal responsibility in professional development and learning.

T2a Apply problem-solving skills to develop solutions to problems.

T3a Communicate analysis clearly and logically.

T4a Work effectively with others and promote professionalism.

Diploma in Higher Education

In order for a learner to be awarded a Diploma in Higher Education (Dip HE), they are required to have achieved **120 Level 4 Credits and 120 Level 5 Credits**, in accordance with the NCH and Northeastern's Academic Regulations for Taught Awards. A DipHE Bioscience with Digital Technologies is the exit award for the Level 5 Technician Scientist Apprenticeship.

Learning Outcomes for Award of Diploma in Higher Education

Knowledge and understanding

A learner will be able to:

K1b Demonstrate knowledge and critical understanding of the underlying scientific principles, theories and concepts of modern bioscience, life science and health and how to apply theoretical knowledge to experimental design.

K2b Demonstrate knowledge and critical understanding of safe and reproducible laboratory practice, experimental and analytical techniques and an ability to accurately improve laboratory techniques using theoretical knowledge and data mining within an organisation to improve it's processes, operations and outputs.

K3b Demonstrate knowledge and critical understanding of the use of mathematics, statistics, data analysis and digital technologies to evaluate results and draw evidence based conclusions.

K4b Demonstrate knowledge and critical understanding of the business environment, ethics, the regulatory environment, effective communication and project management.

Subject-specific Skills

A learner will be able to:

S1b Use a range of established scientific approaches, quality standards and safe working practices to support reproducible laboratory investigations and experimentation.

S2b Critically evaluate scientific experimentation approaches using numerical and statistical data analysis and data mining to challenge assumptions for a range of organisational scenarios.

S3b Analyse, interpret and robustly evaluate scientific data, communicate ideas and comply to business rules with regard to record keeping, data integrity, reproducibility and confidentiality.

S4b Take responsibility for the planning and execution of technical projects to meet scientific objectives and business rules.

Transferable and professional Skills

A learner will be able to:

T1b Exercise personal responsibility in life-long learning, using reflective practice and actively seeking the views of others.

T2b Apply problem-solving and time management skills to work creatively and effectively to develop solutions to problems.

T3b Communicate clear arguments and critical analysis to specialist and non-specialist audiences.

T4b Effectively manage stakeholder relationships, work effectively with others and promote inclusivity, diversity, integrity and ethics.

Appendix D – Programme Structure and Summative Assessment Summary

Code	Indicative Order	Course Title	Credits	Type	Mode	Assessment Weighting % & Activity Type (code overleaf)			
						AE1	Activity type	AE2	Activity type
Level 4 (BSc and DipHE)									
NCHNAP443	1	Business Fundamentals	15	C	DL/WB	50%	A	50%	A
NCHNAP486	2	Applied Cell Biology	15	C	DL/WB	50%	Portfolio	50%	Set
NCHNAP487	3	Biochemistry and Molecular Biology	15	C	DL/WB	40%	CBex	60%	Portfolio
NCHNAP489	4	Drug Discovery and Development (Including Pharmacology)	15	C	DL/WB	50%	A	50%	Set
NCHNAP492	5 or 7	The Regulatory Environment	15	C	DL/WB	50%	Set	50%	A
NCHNAP491	6 or 5	Maths, Statistics, Experimental Protocol and Analysis	15	C	DL/WB	40%	CBex	60%	A
NCHNAP490	7 or 8	Human Physiology and Pathophysiology	15	C	DL/WB	40%	CBex	60%	Set
NCHNAP488	8 or 6	Data Science, Data Visualisation and Communication Bootcamp	15	C	BK/BL	40%	Oral	60%	P
Level 5 (BSc and DipHE)									
NCHNAP555	9	IT Project Management	15	C	DL/WB	70%	A	30%	CBex
NCHNAP5110	10	Infection and Allergy (Including Applied Microbiology)	15	C	DL/WB	60%	Portfolio	40%	CBEx
NCHNAP558	11	Data Analytics	15	C	DL/WB	60%	Pract	40%	A

Code	Indicative Order	Course Title	Credits	Type	Mode	Assessment Weighting % & Activity Type (code overleaf)			
						AE1	Activity type	AE2	Activity type
NCHNAP5107	12 or 13	Cell and Gene Therapy	15	C	DL/WB	50%	F	50%	Set
NCHNAP5109	13 or 14	Industrialisation, Manufacturing and Health Economics	15	C	DL/WB	40%	CBex	60%	Set
NCHNAP5111	14 or 12	Laboratory-based Residential	15	C	BK/BL	50%	Pract	50%	Set
NCHNAP5108	15	Data Driven Experimental Design Project	30	C	DL/WB	60%	R	40%	Oral
Level 6									
NCHNAP6133	16	Critical Thinking and Ethics	15	C	DL/WB	50%	A	50%	Set
NCHNAP6134	17	Digital Health and Artificial Intelligence	15	C	DL/WB	50%	Set	50%	P
NCHNAP6135	18	Frontier Topics in Bioscience	15	C	DL/WB	50%	F	50%	A
NCHNAP684	19	Business and Change Management	15	C	DL/WB	70%	R	30%	A
NCHNAP6136	20	Laboratory Science Capstone Project	60	C	BL/DL/EX/WB	70%	Diss	30%	Oral

Course Type: C = Core; O = Option

Course Mode: CD = Campus Delivery; BK = Block Delivery; BL = Blended Learning; DL = Distance Learning and Self-Directed Learning; EL = E-Learning; EX = Experiential; PL = Placement; WB = Work Based Learning

Assessment Weighting: AE1 = Assessment Element 1; AE2 = Assessment Element 2; AE3 = Assessment Element 3; AE4 = Assessment Element 4

Assessment Activity Type	**Code**
Written exam	Exam
Computer-based exam	CBEx
Written assignment	A
Report	R
Dissertation	Diss
Portfolio	F
Project output (other than dissertation)	P
Oral assessment and presentation	Oral
Practical skills assessment	Pract
Set exercise	Set