University Centre Leeds

Programme Specification		
1	**Awarding Institution/Body**	Luminate Education Group
2	**Delivery Location(s)**	University Centre Leeds
3	**Programme Externally Accredited by (e.g., PSRB)**	None
4	**Award Title(s)**	BSc (Hons) Biomedical & Pharmaceutical Sciences (Top Up) Contained awards: Ordinary degree, i.e.: BSc Biomedical & Pharmaceutical Sciences (Top Up) with 60 credits
5	**UCAS Code**	CF15
6	**Apprenticeship**	*n/a*
7	**HECoS Code and Description**	(100392) Applied science
8	**Mode of Attendance**	Full-time (1 year) and part-time (2 years) face to face taught.
9	**Relevant QAA Subject Benchmarking Group(s)**	Biomedical Science and Biomedical Sciences (March 2023); Biosciences (March 2023); Chemistry (March 2022)
10	**Relevant Additional External Reference Points**	QAA document 'Characteristics Statement: Higher Education in Apprenticeships' (June 2022)
11	**Date of Approval/ Revision**	June 2025
12	**Criteria for Admission to the Programme**	

	Typical Offer	Minimum Offer
UCAS tariff points:	A pass grade or equivalent in a level 5 qualification in a relevant subject. E.g. Foundation Degree at pass, merit or distinction; an HND with P, M or D grade; a DipHE with an average grade of at least 40%	A pass in a level 5 qualification in a relevant subject (e.g. Foundation Degree, HND, DipHE) or 120 credits achieved from relevant level 5 modules as part of any programme of study
IELTS:	IELTS 6.5 with no less than 6.0 in any component.	

	International qualifications:	International qualifications will be assessed against these criteria
	Mature applicants:	University Centre Leeds welcomes applications from mature* applicants who may not have met the academic criteria, but who can demonstrate a wealth of experience in their chosen field. Candidates in this category and otherwise are likely to be interviewed to assess their suitability for the course and may be asked to provide a portfolio of evidence to support their application. **21 years and over at the start of the course*
	RPL claims:	The course structure actively supports claims for Recognition of Prior Certified Learning (RPCL) or Recognition of Prior Experiential Learning (RPEL)

13 **Educational Aims of the Programme**

The programme aims to:

- Develop a multidisciplinary understanding of the science of life, health and disease at the molecular, cellular, system, organismal and environmental level.
- Provide detailed knowledge of microbial processes and applications, including the opportunities to exploit and benefit from these.
- Foster an understanding and appreciation of the chemistry and biochemistry of drug molecules: their design, synthesis and behaviour in the body
- Provide students with an understanding of the theory of typical analytical techniques
- Develop analytical and practical skills involving the use of a wide range of laboratory equipment and techniques as well as methods of scientific data collection, storage and processing.
- Produce graduates who are technically competent in common laboratory procedures, able to work independently as well as in teams with professionalism, and who can learn from experiences through reflective practice.
- Produce graduates who can relate practical laboratory experience to theory, knowledge and standards of good practice

14 **Learning Outcomes**

The programme will enable students to develop the knowledge and skills listed below. On successful completion of the programme, the student will be able to:

Knowledge and Understanding

K1	Apply a deep, comprehensive and detailed knowledge of areas of science to solve problems of relevance to Biomedical, Bioscience, Chemical or Pharmaceutical industries
K2	Evaluate standard scientific procedures in order to justify the choice of technique for a range of applications, considering ethical aspects where appropriate.

K3	Formulate a hypothesis and evaluate procedures in terms of their effectiveness at testing a hypothesis
K4	Critically appraise theories and concepts relevant to the current body of scientific understanding within the Biomedical, Bioscience, Chemical or Pharmaceutical industries

Cognitive/Intellectual Skills

C1	Plan, undertake and evaluate a self-managed project in which evidence is synthesised and appraised
C2	Synthesise information from different sources in order to solve problems
C3	Analyse and solve complex problems in a scientific context, justifying the methods employed, with reference to ethical and safety considerations where appropriate
C4	Critically evaluate, analyse and interpret information from literature sources or laboratory measurements

Professional Skills

P1	Respond to changing situations within the industrial environment of a relevant sector, showing detailed, up to date knowledge of good practice and current regulations
P2	Plan and execute laboratory work with minimal supervision, meeting expected safety and ethical standards

Key Transferable Skills

T1	Independently plan, manage and evaluate the acquisition of new knowledge and skills (as part of a strategy for employment and future professional development)
T2	Communicate complex information clearly, fluently and effectively in a range of styles using technical and specialist language in a professional manner.
T3	Select appropriate examples of computer software to generate, store, process and display data
T4	Critically evaluate their own performance in individual tasks or as part of a team

15 **Key Learning & Teaching Strategy and Methods**

The overall aim of the teaching and learning strategy is to enable students to develop the knowledge as well as the intellectual, personal and practical laboratory skills that constitute the programme through learning activities that:

- are varied, requiring learners to engage with a number of different styles of learning (for example through short verbal expositions, practical demonstrations, visual materials, interactive computer simulations, peer teaching, Socratic debate, practical discovery through laboratory experiments)
- promote both peer interaction and interaction between students and staff
- are closely related to activities that may be undertaken in the workplace
- encourage students to take control of, and responsibility for, their own learning.
- are accessible by all students (with adjustments if necessary) whilst challenging them to sometimes work outside of their comfort zone

The top-up degree has been written with the intention of providing an excellent preparation for students to gain employment in a number of scientific fields. The learning and teaching strategy reflects this in several ways:

- Most of our teaching is conducted in laboratories
- We incorporate the use of a wide range of scientific instruments in our teaching and assessment activities and students will be given plenty of hands-on experience in operating these
- Employers have been consulted about the content of modules to ensure we are developing the right knowledge and skills to help graduates compete for jobs

A range of teaching and learning methods are employed as appropriate to the level and topic to develop the required knowledge base and skills base. The variety of methods will provide an interesting and enjoyable experience of studying throughout the programme.

Students will be encouraged to keep reflective learning journals, both as an assessment tool and as a way of monitoring and managing their own progress towards individual academic and career goals.

All students receive a talk early in the course to explain to them what the University Centre's academic regulations are and what the consequences of failing to adhere to these will be. There will be content in one of the skills modules that are designed to explore the meaning of and emphasise the importance of academic integrity and ethical practice (both in general and the specialist ethical considerations that are relevant to the life sciences).

Students will be required to conduct independent research - both as paper exercises and by conducting laboratory experiments - which they will be expected to be able to design and execute with very minimal supervision.

The use of guest speakers from industry in some modules may provide an industrial perspective on some topics and may raise awareness of the range of activities undertaken in local scientific organisations - inspiring students and placing the theory that is being learned firmly in a real-world context. It should be noted, however, that guest speakers will not be delivering or assessing any curriculum content. Where used, their role will be to provide context to material that will be delivered by members of the teaching team. We may also use guest lectures from members of other teaching teams for short sessions to deliver highly specialised material. For example, staff

	from the Digital team may deliver single-session masterclasses on topics such as advanced methods of data analysis. The programme will mainly be delivered in new purpose-built joint teaching-laboratory spaces in order to incorporate a mix of practical and theoretical-based delivery. Some sessions will involve a blend of short, traditional expositions and lecture-style presentations interspersed with practical activities designed to reinforce or extend the material that has been presented. Other sessions will involve longer, investigative practical activities. Students will be directed to particular chapters of textbooks or high-quality online resources to read prior to teaching sessions, and there may also be videos, interactive quizzes, lecture notes and simulations available for study before and after taught sessions. In this way, students will have the opportunity to learn and discover for themselves new information using a wide variety of methods. They will also be regularly performing laboratory activities commonly employed in industry to increase their competence and confidence in working safely and effectively in a laboratory environment. As well as providing access to written materials, videos, interactive quizzes and simulations, the Virtual Learning Environment (VLE) will provide a central place in which all work will be submitted (through integration with Turnitin, which will be used to check written work for both plagiarism and the use of AI tools). Students may be directed to use the VLE also as a means of communication through the embedded forums, wikis, blogs and instant messaging facilities. Students will be taught to use common IT tools such as word processing and spreadsheet programs in order to produce documents to meet the standards of scientific writing. They may also regularly make use of more specialist pieces of software, for tasks such as retrieval of chemical data or to produce molecular diagrams. Software may also be used as a tool for virtual dissection, a 3D Atlas of human anatomy or to simulate events in the body such as drugs binding to their targets. The main IT systems will be introduced during induction and students' skills will be developed continuously throughout the course. A part-time route is an option over two years studying 6 hours per week on one day. For part-time students, learning materials and online activities will be available through our VLE, and a robust support system will be in place. Students will be expected to have regular tutorials (which may be remotely online) with academic staff and will have full access to support from the University Centre Student Support staff, who can be contacted via the VLE. Full-time students will also be able to access these resources.
16	**Key Assessment Strategy and Methods** The overall strategy is to provide a range of types of assessment that are: ● Varied and challenging in order to engage students ● Authentic to the activities that graduates will be undertaking in the workplace or in further study ● Accessible by all students (with adjustments if necessary)

- Thorough assessments of the full range of stage or programme learning outcomes
- Designed to allow students to demonstrate the skills and knowledge that they have developed throughout the course.

The assessments are also designed to be increasingly challenging from level to level to promote and measure students' progress as they face the greater academic demand of each new level.

Assessments have been created with the intention of providing an excellent preparation for students to gain employment in a number of scientific fields. Many assessments have been devised to be as similar as possible to activities that would be undertaken in the workplace. In this way we are developing and assessing skills that are relevant to industry and enhance students' employability.

Taught sessions will incorporate regular short formative assessment activities with feedback (and feedforward) to guide students' progress and development. Pair and small group activities will be regularly used in most modules, allowing students to improve their communication and teamwork skills. Short presentations by students will form part of the body of formative and summative assessment activities, increasing students' confidence in speaking and presenting.

Formative assessment will begin very early in the course, with short basic tests increasing in demand over the weeks. This is in order to provide a smooth transition from previous education and to identify any students who may need extra support.

Some formative assessment tasks will be used to prompt discussions in subsequent taught sessions, others will be delivered via the VLE and will provide instant feedback. Preparation for practical activities will be available in the form of virtual experiments in which online feedback is instantly available. Real and simulated practical activities will also provide data and the processing of this provides another opportunity for formative assessment with feedback on both the quality of the data collected, and how this may be improved, and how it is displayed and manipulated to form conclusions.

The programme will be assessed summatively through a range of methods, including laboratory activities with reports written to follow a standard GLP format, problem-based group projects, oral and poster presentations, case studies and research projects and the production of journal-style articles.

This range of activities provides the opportunity for all students to demonstrate the knowledge and skills that they have acquired throughout their studies. The mix of practical and written assessments will provide evidence to employers of the level of laboratory skills and other abilities (such as teamwork, communication skills, ethical integrity, etc.) that a student has developed, whilst also enabling those students who wish to go on to further study to demonstrate the theoretical knowledge and academic skills that they have learned.

Students will be required to design and conduct their own research project. Academic and technical advice will be available to assist them in this, but it is expected that they will be able to work with some degree of independence and will be capable of managing their own laboratory time to complete the project with minimal intervention from staff.

17	**Industry Specific Skills Development** Students are not required to undertake formal work experience or placements. In almost all modules, students are given the opportunity to learn industrially relevant skills. We have invested in a number of scientific instruments that are currently used in industry and students are trained to use these and interpret the data generated by them in the same way as they would in the workplace. The programme allows students to learn and improve skills such as weighing, pipetting, using a dissection kit, using the light microscope, preparing and analysing microbiology specimens, using the autoclave, preparing plates, using UltraViolet-Visible spectrophotometers, Fourier-transform Infrared Spectrometers, Nuclear magnetic resonance spectrometers, and the High-Pressure Liquid Chromatography – Mass spectrometers, to name just a few. The skills mentioned above are used on a daily basis in laboratories that test the effect of various drugs, laboratories preparing various drugs, ecology-based environmental surveillance, research and educational laboratories.
18	**Transferable Skills Development** Teaching is designed with an awareness of the need to develop STEM 7 transferable skills. For example: ● Peer learning and group activities are routinely used to meet the collaboration skill ● Many modules involve students generating and analysing data. Forming conclusions based on this process addresses the development of both data-driven decisions and problem solving ● In some modules, especially in the higher levels, creative thinking and intellectual curiosity are required to succeed. For example, individual research projects would simply not be possible without these attributes. ● A number of learning activities require students to work in groups and communicate with one another and with lecturers - verbally and in a variety of electronic forms. Throughout the course, students will develop their written, oral and visual communication skills through tasks that require them to produce posters (e.g. Genetic Mechanisms of Disease), give oral presentations (Undergraduate Research Project), write reports (Research Skills, Natural Product Preparation, Recombinant Technology, Drug Synthesis) or produce written work in a style that is comparable to published academic work (Undergraduate Research Project, Genetic Mechanisms of Disease). The research project based module (Undergraduate Research Project) will enable students to develop a number of transferable skills that are attractive to employers such as project management including resource management and some consideration of working within

	budgetary restrictions and collaboration skills as students will be sharing facilities and may wish to assist one another in closely related projects. Numeracy skills will be developed and formatively assessed in almost all modules, and students will gain extensive experience of collecting, evaluating, processing and displaying data. Students will be expected to take control of their own learning and be responsible for their own performance. Students will also have gained a vast amount of experience of considering safety and formally risk-assessing activities. The ability to work independently and safely without constant supervision is prized by employers in the science sector.
19	**Sustainability** Sustainability is addressed in the following modules: ● Physical and Inorganic Chemistry - studying theoretical and practical aspects of efficiency of reactions (e.g. influence of temperature or pressure on equilibria and effect on yields); study of movement of energy in chemical reactions; study of electrochemistry (e.g. electrochemical production of hydrogen as an alternative to fossil fuels or in relation to battery technology and electricity storage) ● Drug Synthesis - e.g. through teaching examples of how chemicals can be produced in reactions that use no solvents or replace traditional organic solvents with ones such as water, ionic liquids or deep eutectic solvents (i.e. liquids that do not have a petrochemical origin). Also, through examining reactions that can be performed at room temperature or via microwave heating instead of through reflux - which reduces the energy needed for heating, and the water consumed in traditional cooling of condensers used in reflux) ● Natural Product Preparation - comparing the impact (energy consumption, resource demand, production of hazardous waste, etc.) of synthesising compounds versus extracting them from plants. ● Anatomy and Physiology - use of virtual anatomy platforms - the free version of Visible Body - to reduce the use of animal body parts for dissection. ● Advanced Concepts in Cellular Biology - use of pre-prepared microscopy slides to reduce the use of formaldehyde - this is toxic for the environment and the specialists preparing the microscopy specimens. Because of this toxicity, most steps are carried out in the fume cupboards. The electricity used when the fume cupboards are working is greatly reduced by using prepared specimens. Also, these specimens can be reused for several years. Biology formative assessment activities are done electronically, reducing the use of paper for printing.

20 **Programme Modules**

Level 6

Code	Title	Credits	Core/Option	Compensatable / Non-Compensatable
SCI6C036R	Undergraduate Research Project	40	Core	Non-compensatable
SCI6C030R	Research Skills	20	Core	Compensatable
SCI6E031R	Genetic Mechanisms of Disease (option)*	20	Option	Compensatable
SCI6E032R	Drug Synthesis (option)*	20	Option	Compensatable
SCI6?033R	Recombinant Technology (option)*	20	Option	Compensatable
	Natural Product Preparation (option)*	20	Option	Compensatable
SCI6E034R	Microbial Pathology (option)*	20	Option	Compensatable
SCI6E035R	Pharmaceutical Analysis (option)*	20	Option	Compensatable

*Optional modules will only be offered if there is enough interest in them to justify delivering the module. Students will be asked to make choices well in advance of the start of the modules and numbers will be monitored closely. In the event of a module being chosen by very small numbers of students, those who have elected to study that module will be contacted and the alternative module available will be discussed. Any impact on the options available later in the course will be discussed.

Example scenario 1: too few students opt to study Physical and Inorganic Chemistry. Those students would be informed that the module was not running. They would be offered the alternative module Anatomy and Physiology. It would also be explained to them that if they study the module Organic Chemistry in semester 2, then they would have met the requirements to study any level 5 module - and so there has been no negative impact on their options later in the course.

Example scenario 2: the entire cohort at level 4 is small and there are not enough students to justify options at all. Those students would be informed that the module Physical and Inorganic Chemistry was not running. They would be offered the alternative module Anatomy and Physiology. All students would be informed that the module Biochemistry would not run in semester 2 and they would all have to study the module Organic Chemistry in semester 2. It would be explained to them that this combination ensures that there can be no negative impact on their options in later years of the course.

21	**Programme Structure** **Full time - September start** This mode of delivery will require students to attend face to face classes on 2 days of the week. All 20-credit modules will be delivered over 39 hours with an extra 6 hours dedicated to assessment only (13 weeks of 3-hour taught sessions plus 2 weeks of 3-hour assessment-focussed sessions). The Undergraduate Research Project module, which is a 40-credit module, will be delivered over 90 hours: 26 weeks of 3-hour flexible laboratory sessions (in which students will have access to lab facilities as needed, but may spend some of this time researching and planning their project) plus 4 weeks of 3-hour assessment-only sessions (which can be used for analysing data and writing up). All students will be offered a pastoral tutorial lasting no more than 1 hour each week The Undergraduate Research Project module is run throughout the year, allowing students the time to develop and fully interrogate a scientific brief. This is supported by the first semester delivery of Research Skills, which will help students to form appropriate research questions and to develop a realistic and achievable research project. The laboratory-based optional modules in semester 1 give students a choice between exploring how human disease, treatment and diagnoses are made using modern technologies in Genetic Mechanisms of Disease or how to extract, purify and exploit chemicals found in living organisms in Natural Product Preparation. learning to design and carry out syntheses of new molecules that may be used as new medicines in Drug Synthesis. In semester 2, students can choose between studying the mechanisms by which pathogens cause infectious disease in Microbial Pathology or gaining hands-on experience in using a number of specific instruments to determine the identity, purity and quantity of substances present in medicines in Pharmaceutical Analysis. They can also choose between advancing their modern biological knowledge relating to informatics, gene therapy and knowledge of rare disorders in Recombinant Technology or learning to design and carry out syntheses of new molecules that may be used as new medicines in Drug Synthesis. All options provide a range of industrially relevant topics as well as enabling students to develop key practical skills and allow students to tailor their studies to fit their particular interests or progression ambitions. **Full-time structure diagram - September start**

Semester 1	Semester 2
Research Skills (20 credits)	Recombinant Technology (opt) (20 credits) OR Drug Synthesis (option) (20 credits)

Genetic Mechanisms of Disease (opt) (20 credits) OR Natural Product Preparations (option) (20 credits)	Microbial Pathology (option) (20 credits) OR Pharmaceutical Analysis (opt) (20 credits)
Undergraduate Research Project (40 credits)	

Part-time - September start

The part-time structure is designed to allow for low numbers of students who may wish to follow this route. It would typically be offered on an infill basis with part-time students joining classes with full-time students in order to keep viable groups.

All 20-credit modules will be delivered over 39 hours with an extra 6 hours dedicated to assessment only (13 weeks of 3-hour taught sessions plus 2 weeks of 3-hour assessment-focussed sessions). In year 2, the Undergraduate Research Project module, which is a 40-credit module, will be delivered over 90 hours: 26 weeks of 3-hour flexible laboratory sessions (in which students will have access to lab facilities as needed, but may spend some of this time researching and planning their project) plus 4 weeks of 3-hour assessment-only sessions (which can be used for analysing data and writing up).

All students will be offered a pastoral tutorial lasting no more than 1 hour each week

The level 6 modules would take 2 years. In year 1, students would complete three taught optional modules. In year 2, all students would study Research Skills, which will help them to form appropriate research questions and to develop a realistic and achievable research project. The project will then be conducted throughout year 2

Part time structure diagram - September start

Year 1

Semester 1	Semester 2
Genetic Mechanisms of Disease (option) (20 credits) OR Natural Product Preparations (option) (20 credits)	Recombinant Technology (opt) (20 credits) OR Drug Synthesis (option) (20 credits)
	Microbial Pathology (option) (20 credits) OR Pharmaceutical Analysis (option) (20 credits)

Year 2

Semester 1	Semester 2
Research Skills (20 credits)	
Undergraduate Research Project (40 credits)	

22 Apprenticeships

n/a

23 Support for Students and Their Learning

A detailed induction programme has been designed to introduce students to the key features of the course and methods of working such as the use of the VLE and safe working practices in

the laboratories. Activities give students hands-on experience of using University Centre IT systems, laboratory equipment and facilities whilst also being engaging and providing opportunities for students to interact socially and become comfortable with the environment. Important support services such as the library and members of the Student Support staff are introduced at this point.
All of the teaching and support staff are approachable, easily contactable and dedicated to assisting students in their studies.

Each student is allocated a personal tutor for regular tutorials, academic progress checking and personal development planning. The personal tutor will also provide pastoral care. The departmental Progress Coach will meet all students early in the course and will provide 1 to 1 support sessions for any student who is struggling with attendance or keeping up with work.

Tutorials will begin as whole-group sessions and will cover general topics such as academic regulations, the student representative scheme, the student ambassador scheme, and additional learning support, as well as sessions from the librarian covering topics such as referencing and plagiarism, academic search skills and basic IT skills.
Later, the tutorial session will be used for individual meetings between the tutor and students to conduct academic progress checks. Individual appointments with the departmental Progress Coach to support students with attendance, submission of work or to signpost specialist financial/welfare/mental health/etc. support will be available at any time if needed.

Support with specific learning difficulties, financial and welfare support and counselling services are provided by a dedicated University Centre Leeds disability support team including specialist study skills.

Part-time students will have access to support materials through the VLE and will be able to contact staff for support remotely using the VLE and other communication tools such as email and chat facilities.

International students will be supported to get used with the British educational system and culture by the pastoral team. While on the programme, they will have access to the course materials on the VLE, they will take part in workshops and tutorials and will have a personal tutor to check on their progress. Further support will include:

1. Practical support
    a. Information regarding Visa & Immigration is available on our University Centre Leeds website
    b. Finding accommodation – the international students will be supported by the Student Accommodation Adviser
    c. Finances - guidance regarding opening bank accounts, budgeting and managing finances – Funding and Welfare Adviser
    d. Information regarding healthcare options, including how to access medical services – Wellbeing Adviser

2. Academic support
    a. Academic support - the Academic Coach
    b. Counselling and mental health - Student Support team

3. Social and Cultural Support – Student Support Team and the Access and Participation Team, as well as a buddy system, where the international students will have a buddy to support them adjust to the new environment.

	4. Culture Shock, Homesickness, mental health - Student Support Team and Access and Participation team Academic support beyond the delivery of modules is provided by staff, aided by study skills support tutors. This will be tailored to the needs of each student - challenging the highest achieving to go even further whilst providing support for those struggling in any area. Staff holidays are managed, wherever possible, to ensure at least one person is available during vacations. The library and librarians provide a range of services to help students in finding information and producing high-quality work that complies with set academic standards. Sessions can be delivered on simple academic online searching, understanding and avoiding plagiarism and correct referencing style.
24	**Distinctive Features** The programme places an emphasis on the balance between core scientific theory and skills, setting both into industry-relevant contexts. It aims to produce students who have the tools to succeed within employment with appropriate transferable skills, as specified by our industrial contacts. Our team works closely with a range of companies across Yorkshire, with a wide range of specialisms. The companies we are working with are involved in the Healthcare, Environmental and Chemical industries. There is an outstanding range of opportunities to develop practical scientific experience valued by sectors such as chemical industries (e.g. fine or bulk chemical production, analytical or environmental chemistry), healthcare, microbiology testing, bioscience and biotechnology industries (e.g. laboratory diagnostic information regarding products used in the treatment of various diseases, production and regulation of microbial processes including the production of pharmaceuticals and bio-products). Most of our teaching is done in laboratories, with very little delivery in classrooms. We believe that the use of practical activity-led teaching in most of the modules sets this course apart from the majority (in which most teaching will be in lecture theatres and classrooms, supplemented by laboratory-based teaching in separate sessions). Throughout the course, students will have many opportunities to develop a wide range of practical skills that are valued in a number of different industries. The employability skills of our graduates will be enhanced by developing their confidence in working in a laboratory environment and through their extensive practice of common standard procedures. Our students acquire skills that are highly-valued in industry, such as: the ability to conducts practical investigation whilst being aware of health and safety regulations; the ability to conduct and follow risk assessments; to collect data accurately; to analyse the data collected and draw justified conclusions regarding the processes analysed; to communicate information using a variety of methods, such as reports, project proposals, scientific presentations, case studies, essays, and academic posters. We have made a significant investment (just under £400k) in several new pieces of equipment which will be made available to students to use in taught sessions and, where relevant, in their own research projects. We have consulted carefully with a range of employers to ensure that both the theoretical content and the practical experience that is delivered fit their requirements, ensuring that our graduates have the best chance of being well-equipped to compete for jobs in the science sector.

	The range of modules offers an excellent opportunity to work across disciplines, providing an innovative and contemporary way of developing scientific skills. The balance of bioscience and chemistry also sets this programme apart from many others, providing opportunities for students who have studied some chemistry at level 4 or 5 to join the course and progress into industries requiring significant chemical knowledge. Innovative assessment methods that require the use of AI tools in order to complete tasks, will prepare our students for their future working life. By the time they have graduated, AI will undoubtedly be involved in almost all roles in scientific and related industries and having had experience of making effective and ethical use of these tools can only be an advantage. The condensed timetable (requiring attendance on just two days of the week) will enable students who otherwise would struggle to commit to attendance spread over more days to study our degree. Small group teaching may appeal to students who are looking for a more supportive academic environment or those who prefer a calm, friendly social environment over the often-hectic conditions of a very busy lecture theatre, laboratory or seminar room. In particular, a number of neurodiverse students have told us that they are able to study more effectively on our course than one with much larger student numbers. Almost all our lecturers are highly specialised in Inorganic Chemistry, Biochemistry and Biology/Pathology holding a PhD in their area of expertise. All our lecturers also hold an MSc degree in their specialism. Most lecturers are qualified teachers or qualified lecturers, holding the QTS or QTLS, respectively. Some lecturers are members of Royal Society of Chemistry, American Chemical Society or Royal Society of Biology, Biochemistry Society, or are Fellows of Higher Education Academy. Some lecturers are also external examiners for other Higher Education Institutions and also take part in validation of internal and external programmes. One of our lecturers took part in the Trailblazer group involved in the writing up of the new Level 6 Scientist Apprenticeship standard. Our lecturers are also involved in scientific or educational research projects conducted with the contribution of the final year students and apprentices.

Appendix 1

Map of Outcomes to Modules

Programme Outcome Key														
Module Titles	**K1**	**K2**	**K3**	**K4**	**C1**	**C2**	**C3**	**C4**	**P1**	**P2**	**T1**	**T2**	**T3**	**T4**
Undergraduate Research Project			X		X	X				X	X		X	X
Research Skills		X		X	X					X	X			
Genetic Mechanisms of Disease (option)	X		X				X	X				X		
Natural Product Preparation (option)	X		X				X	X				X		
Recombinant Technology (option)	X			X			X	X				X		
Drug Synthesis (option)	X			X			X	X				X		
Microbial Pathology (option)		X		X		X	X		X					
Pharmaceutical Analysis (option)		X		X		X	X		X					

Appendix 2

Map of Teaching and Learning Methods

Module Titles	Methods								
	Lectures	Student led/ interactive/ shared learning seminars	Case Studies	Skills workshops	Practicals	Group activities	Guest speakers	Independent / E Learning/ On-line forums	Demonstrations
Undergraduate Research Project				✓	✓		✓		✓
Research Skills	✓		✓	✓	✓				✓
Genetic Mechanisms of Disease (option)	✓		✓		✓	✓		✓	✓
Drug Synthesis (option)	✓		✓		✓	✓		✓	✓
Recombinant Technology (option)	✓	✓		✓	✓	✓			✓
Natural Product Preparation (option)	✓	✓		✓	✓	✓		✓	✓
Microbial Pathology (option)	✓	✓		✓	✓	✓		✓	✓
Pharmaceutical Analysis (option)	✓	✓	✓	✓	✓	✓		✓	✓

University Centre Leeds

Appendix 3

Map of Assessment Methods

(Option) = module is optional

Module Titles	Project Report	Academic Poster	Improve AI-generated work	Literature survey	Drug design report	Open Book Test	Review article	Research project proposal presentation	Data analysis	Group project	Pilot study proposal	Scientific journal-style paper	Pilot study report	Case study
Undergraduate Research Project								30%, 10 mins presentation wk10				70%, 45000 wds wk278		
Research Skills											50%, 2500wds wk 8		50%, 2500wds wk15	
Genetic Mechanisms of Disease (option)		40%, A1 poster wk5						60%, 3000wds wk14						
Natural Product Preparation (option)	50%, 2500wds wk5													50%, 2500wds wk14
Recombinant Technology (option)					40%, 2000wds wk20		60%, 3000wds wk29							
Drug Synthesis (option)			50%, 2500wds wk20		50%, 2500wds wk29									
Microbial Pathology (option)						40%, wk30, 2-hours			60%, 3000wds wk22					
Pharmaceutical Analysis (option)				40%, 2000 wds wk22						60%, 3000wds wk30				

University Centre Leeds

Map Subject Benchmarks to Programme and Module Learning Outcomes

Threshold Level	Module & Learning Outcomes	Excellent Level	Module & Learning Outcomes
Recall basic knowledge of key concepts in Biomedical Science and/or Biomedical Sciences and phenomena relevant to the course and explain these using appropriate terminology	n/a	Apply a comprehensive knowledge of concepts in Biomedical Science and/or Biomedical Sciences and phenomena to discuss and explain essential aspects of the course and show evidence of enquiry beyond this	Genetic Mechanisms of Disease LO3
Demonstrate an understanding of basic experimental design and application of methods to solve routine problems relevant to the course, with some awareness of appropriate controls, possible bias, ethics and sustainability.	n/a	Devise and evaluate solutions to solve both routine and unfamiliar problems using a range of methods, including awareness of appropriate controls, possible bias, ethics and sustainability	Undergraduate research project LO2
Produce and follow risk assessments for completing practical work in a safe and reliable manner with support.	n/a	Independently produce and apply risk assessments for completing practical work in a safe and reliable manner	Undergraduate Research Project LO4
Suggest and demonstrate competence in a broad range of appropriate qualitative and quantitative practical techniques relevant to the course.	n/a	Design, optimise and demonstrate competence in a broad range of appropriate qualitative and quantitative practical techniques relevant to the course, with a high degree of autonomy and efficiency.	Undergraduate Research Project LO4
Apply computational techniques and tools to investigate familiar Biomedical Science and/or Biomedical Sciences concepts covered in course content and report outcomes using appropriate terminology	n/a	Select and apply appropriate computational techniques and tools to investigate complex Biomedical Science and/or Biomedical Sciences concepts and evaluate and report outcomes using appropriate terminology	Drug Synthesis LO2 Undergraduate Research Project LO5
Assess the evidence base for scientific claims, by accessing primary literature and commenting on the adequacy of the methods, data and interpretation therein	n/a	Identify and select appropriate sources of biological information, including primary literature, and appraise and evaluate the adequacy of methods, data and their interpretation with a high degree of independence	Recombinant Technology LO4 Research Skills LO2

Demonstrate planning, execution and presentation of a piece of independently produced work which includes analysis or evaluation of data within a supported framework, demonstrating some evidence of time management, problem solving and independence.	n/a	Demonstrate highly independent and competent planning, execution and presentation of a piece of independently produced work which includes the analysis and critical evaluation of data, demonstrating high levels of time management, problem solving and independence	Natural Product Preparation LO1 Undergraduate Research Project LO6
Identify and discuss application of Biomedical Science and/or Biomedical Sciences in solving current and future challenges in the world and demonstrate some understanding of the role of Biomedical Scientists and research scientists in this	n/a	Explain, suggest and critique ways in which Biomedical Science and/or Biomedical Sciences and Biomedical Scientists can contribute to solving current and future world challenges	Drug Synthesis LO3 Research Skills LO1
Identify and explain relationships between Biomedical Science and/or Biomedical Sciences and other subjects relevant to the course content	n/a	Explain and evaluate the contribution of Biomedical Science and/or Biomedical Sciences to solving interdisciplinary challenges and the role of interdisciplinary thinking in solving scientific problems	Undergraduate Research Project LO1
Use mathematical and statistical concepts, processes and tools to solve familiar problems or evaluate data	n/a	Select, use and evaluate appropriate mathematical and statistical concepts, processes and tools to solve problems or evaluate data	Undergraduate Research project LO3
Demonstrate accurate data collection, including selection of appropriate methods for analysis, interpretation of findings to test hypotheses, consideration of further lines of investigation and manipulation of data for effective presentation.	n/a	Demonstrate independent and accurate data collection, including selection of appropriate methods for analysis, interpretation of findings to test hypotheses, consideration of further lines of investigation and manipulation of data for effective presentation, with a thorough understanding of the context of the investigation within the field.	Undergraduate Research project LO2
Effectively participate in group and teamwork, demonstrating clear contributions to the work.	n/a	Identify and apply effective strategies for working in a group environment and provide clear and valuable contributions to team outputs, demonstrating good teamwork and/or leadership skills	Work Related Learning LO3
Communicate information, ideas, problems and solutions verbally and/or non-verbally, with clear expression and style	n/a	Communicate information, ideas, problems and solutions to an accomplished level verbally and non-verbally, in an accurate, fluent and sophisticated style, at a level consistently appropriate for the audience	Drug Synthesis LO5 Research Skills LO5 Recombinant Technology LO5
Describe some of the ethical issues and societal impacts of advances in Biomedical Science and/or	n/a	Understand and evaluate ethical issues and the societal impact of advances in Biomedical Science and/or Biomedical Sciences, with some understanding of the historical context of the subject	Microbial Pathology LO3 Research Skills LO4

Biomedical Sciences, with some acknowledgement of the historical context of the subject			Undergraduate Research project LO4
Awareness of how new findings may change current understandings of various topics in Biomedical Science and/or Biomedical Sciences, that many aspects of the subject are not fully understood and demonstrate some ability to stay up to date with new findings	n/a	Clear appreciation of the fluid nature of knowledge in Biomedical Science and/or Biomedical Sciences, including an ability to incorporate new findings into previous understanding of various topics.	Research Skills LO1