Programme Specification

1	**Awarding Institution/Body**	Luminate Education Group
2	**Delivery Location(s)**	University Centre Leeds
3	**Programme Externally Accredited by (e.g., PSRB)**	No
4	**Award Title(s)**	Foundation Degree - Biomedical and Pharmaceutical Sciences Foundation Degree - Biomedical and Pharmaceutical Sciences (with Foundation Year) Certificate of Higher Education - Biomedical and Pharmaceutical Sciences
5	**UCAS Code**	CF12 and CF13
6	**Apprenticeship**	Laboratory Technician - available at: Laboratory technician / Institute for Apprenticeships and Technical Education Technician Scientist - available at: Technician scientist / Institute for Apprenticeships and Technical Education Laboratory Scientist (part of this standard) - available at: Laboratory scientist (degree) / Institute for Apprenticeships and Technical Education
7	**HECoS Code and Description**	(100392) Applied science
8	**Mode of Attendance**	Full-time and Part-time Duration Full Time: 2 years (FD without Foundation Year) or 3 years (FD with Foundation Year) Part-Time: 2 years (CertHE); 3 years (FD without Foundation Year) or 5 years (FD with Foundation Year) or 2 years (for the Foundation Year alone)
9	**Relevant QAA Subject Benchmarking Group(s)**	Biomedical Science and Biomedical Sciences (March 2023), Biosciences (March 2023), and Chemistry (March 2022)
10	**Relevant Additional External Reference Points**	QAA document 'Characteristics Statement: Foundation Degree' (February 2020) QAA document 'Characteristics Statement: Higher Education in Apprenticeships' (June 2022)
11	**Date of Approval/ Revision**	2024
12	**Criteria for Admission to the Programme (select the appropriate Entry Criteria for the award and remove the others)**	

Level 3 (Foundation Year 0) Entry Criteria

	Typical Offer	Minimum Offer
A Levels:	32 UCAS tariff points from at least one A-level or equivalent qualification	Evidence that level 3 study has been completed, even if no qualifications have been passed (e.g. a U grade at A-level or completion of some credits in a BTEC level 3 courses)
IELTS:	IELTS 6.0 with no less than 5.5 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 the ability to cope with university-level study. Candidates in this category 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)

Level 4 (Foundation Degree) Entry Criteria

	Typical Offer	Minimum Offer
A Levels:	64 UCAS tariff points from two A levels or equivalent qualifications, 32 points of which must be from one A level or equivalent in a relevant science subject	40 UCAS tariff points from at least one A level or equivalent qualification in a science subject.
IELTS:	IELTS 6.0 with no less than 5.5 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)	

Additional entry criteria (Foundation Degree only)

	Criteria
GCSE English: Desirable but not essential	English Language grade 4 (C). Key Skills Level 2, Functional Skills Level 2 and the Certificate in Adult Literacy are accepted in place of GCSEs.
GCSE Maths: Essential	Maths grade 4 (C). Key Skills Level 2, Functional Skills Level 2 and the Certificate in Adult Numeracy are accepted in place of GCSEs
GCSEs:	GCSE Science at grade 4 (C)

13 Educational Aims of the Programme

The programme aims to:

- Develop a multidisciplinary understanding of the science of human life, health and disease at the molecular, cellular, system, organismal and environmental level.
- Provide detailed knowledge of microbial processes and applications, including the opportunities for humans 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 industry-standard analytical techniques
- Develop analytical and practical skills involving the use of a wide range of laboratory equipment (including industry-standard items) 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.

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 *(insert additional rows as necessary)*

K1	Demonstrate a comprehensive and detailed knowledge of activities and applications within the Biomedical, Bioscience, Chemical or Pharmaceutical industries
K2	Demonstrate a clear, broad and detailed knowledge of standard scientific procedures and describe aspects of good practice including ethical considerations within relevant industry bases
K3	Explain how hypotheses (devised or provided) may be tested using standard procedures
K4	Demonstrate a broad, up to date interdisciplinary knowledge of theories and concepts relevant to the current body of scientific understanding within the Biomedical, Bioscience, Chemical or Pharmaceutical industries

Cognitive/Intellectual Skills *(insert additional rows as necessary)*

C1	Research, plan, undertake and evaluate a self-managed project in which evidence is synthesized and appraised relevant to Biomedical, Bioscience, Chemical or Pharmaceutical industries
C2	Demonstrate both breadth and depth in the application of knowledge to the solution of problems
C3	Confidently and creatively identify, analyse and solve complex problems in a scientific context using appropriate knowledge and methods
C4	Draw concise and accurate scientific conclusions through the analysis of data including evaluation of the quality and reliability of the data

Practical/Professional Skills *(insert additional rows as necessary)*

P1	Respond to changing situations within the industrial environment of a relevant sector, showing knowledge of good practice and current regulations
P2	Work safely within a laboratory environment and show knowledge of hazards, risks and ethical issues with appropriate responses for relevant industries

Key Transferable Skills *(insert additional rows as necessary)*

T1	Plan, manage and evaluate the acquisition of new knowledge and skills as part of a strategy for employment and future professional development
T2	Communicate clearly, fluently and effectively in a range of styles using technical and specialist language in a professional manner. Engage in academic debate and discussion effectively

	T3	Demonstrate the ability to use standard and specialist examples of computer software which are relevant to the industry sector
	T4	Operate as part of a team and evaluate own performance

15 Key Learning & Teaching Strategy and Methods

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 these modules.

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 starting the course at Year 1 will be asked to discuss issues of integrity in the *STEM Toolkit* module. Those joining the course via the Foundation Year will be engaged in this material in the *Academic Skills* module.

As the course progresses, students will be increasingly required to conduct independent research - both as paper exercises and by conducting their laboratory experiments - which by the end of the course they will be expected to be able to design for themselves.

The use of guest speakers in some modules will provide an industrial perspective on some topics and will 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.

The programme will be mainly delivered in specially designed 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 will 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 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 such as ChatGPT). Students will 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 will also regularly make use of more specialist pieces of software, such as Molview or Chemicalize, to retrieve chemical data and produce molecular diagrams. The BioDigital Human Platform will be used as a tool for virtual dissection, a 3D Atlas of human anatomy and to simulate events in the body such as drugs binding to their targets. Cheminformatics software such as MolInspiration, SwissADME or ChemSpider will be used for predicting physicochemical properties. Use of all of these will be incorporated into theory and practical teaching and students will be expected to use them in producing assessed work. The main IT systems will be introduced during induction and students' skills will be developed continuously throughout the course. Students are required to perform meaningful work experience in a relevant science-based role. For students who are unable to find such work experience, we will be able to offer short placements with the laboratory technicians in our labs or the labs at other Luminate Group campuses. As part of the WRL module students produce a record of laboratory skills and competencies that they have acquired. At the end of each year, students are assigned summer projects, which may involve directed reading, completing quizzes, individual research on a set topic or writing a short article on a set topic. This will assist students in preparing themselves for the next level of study. Students will be expected to complete the project by the first week of teaching in the next year. Some teaching time in the first week will be used to check progress in the summer project and direct students to further work or remedial work if they are struggling to meet the increased demands of the new level. Academic support via Workshops and support with study skills and habits via the departmental Progress Coach will be available to those who need help rising to the increased challenges. A part-time route is an option over three years studying 6 hours per week on one day. in addition to completing work-based learning in the workplace of a relevant industry. This is aimed at those individuals who have full-time employment in the sector. Each module will be delivered over one semester, and WRL and Science Investigation will be completed at the place of work. Students will be supported through the VLE in addition to tutorial activities. In this way, the qualification can be used to offer either a level 5 Technician Scientist apprenticeship or a level 6 Laboratory Scientist apprenticeship delivered in a day-release model for 3 years. Apprentices would complete 3 modules per year in the University Centre, plus work-based modules with their employer. 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 HEALS 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** Taught sessions will incorporate regular short formative assessment activities with feedback (and feedforward) provided to guide students' progress and development. Pair and small group activities will be regularly used in all 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. Online diagnostic testing in maths skills will be used at the very beginning of the course to provide information about specific support in this area that may be required.

Formative assessment will be in the form of regular quizzes and tests, some of which will be discussed in subsequent 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 traditional examinations, laboratory activities with reports written to follow a standard GLP format, problem-based group projects (assessed on the outcome of the project and the performance of the group), oral and poster presentations, case studies, portfolios of evidence collected over a period of several weeks, research projects with written reports (including a mini-dissertation style report) and essays.

There will also be 2 *take home tests*. These consist of a set of questions that are longer and more open than in a traditional 'closed book' test, requiring students to demonstrate a deeper understanding than is the case with simple questions that often require little more than recall of facts. Some questions may require students to search online, in textbooks or through their own notes for information that they will use to construct answers. The tests will be hosted on the VLE and will become available at a fixed time. Students will have to complete the questions in either 48 hours (at level 3) or 24 hours (at level 4) - submitting answers via the VLE. There are a number of advantages of this style of assessment over traditional exams or tests (usually taken over a period of 60 to 180 minutes without access to sources of information). They have been shown to reduce student anxiety, promote higher order thinking skills, allow more sophisticated questions to be asked and are considered more authentic.

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, including formal examinations, 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.

A small number of examinations are included as part of the varied set of assessment methods as they are still widely used across the sector and some of our students perform well in this type of assessment. Our students will be expected by employers to have experience in demonstrating their ability to apply knowledge under exam conditions and some professional bodies will require members to sit examinations as part of the registration process. Also, students who wish to progress to certain postgraduate courses may be disadvantaged by not having experience of assessment via examinations.

In year 1 (level 4) and year 0 (level 3) both formative and summative assessments will be used to gauge students' levels of ability in academic skills such as information retrieval, academic writing, evaluation of sources and correct referencing style. The development of these skills will be supported by the Library+ service with librarians providing short whole-group sessions and a drop-in service. Feedback on these skills

	will be developmental, intending to lead to increased independence by year 2 (level 5) when students will be expected to use these skills to produce written work with reduced assistance. At level 5, 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 have become independent learners by this stage and will be capable of managing their own laboratory time to complete the project with minimal intervention from staff. For apprentices, there will be continuous assessment of competencies that begins almost immediately. There will also be an end point assessment involving a portfolio of work (comprising a problem-solving project report, presentation, and competence discussion). There will be additional tutorial time with an assessor at the end of each academic year to support preparation for the end-point assessment. Both L3 Laboratory Technician and L5 Technician Scientist apprentices will study our programme in a part-time mode, as separate groups if the numbers allow (or they will infill into the degree students groups, if the numbers are too small to have a group of their own). The L3 laboratory Technician apprentices will spend two years on the programme, finishing with a CertHE and RSciTech. The L5 Technician Scientist apprentices will spend three years on the programme, finishing with a Foundation Degree. In Year 3 the apprentices will study three modules in the University Centre: one core module and three options. Two further core modules (*Work Based Learning and Scientific Investigation*) will be delivered remotely in the form of project work conducted at the student's place of work with close monitoring and support from University Centre tutors. *Work Based Learning and Scientific Investigation* have tasks that can be tailored to the apprentices' workplace characteristics and ensure no duplication of work. They are both closely mapped to the standard and there is minimal duplication of the KSBs assessed in these modules. The methods of assessment were chosen to develop and support apprentices for their End Point assessment. The Occupational standards for both L3 Laboratory Technician and L5 Technician Scientist standards are mapped to the Programme Outcomes and learning Outcomes for each module taught in the programme and the tables are in the Appendix 4, pp 30-31.

17 **Programme Modules**

Level 3 (Foundation Year)

Code	Title	Credits	Core/Option	Non-Compensatable	Compensatable	Variance
BIO011	Fundamentals of Biology	20	**Core**		✓	
BIO021	Further Biology	20	**Core**		✓	
CHE011	Fundamentals of Chemistry	20	**Core**		✓	
CHE021	Further Chemistry	20	**Core**		✓	
MAT011	Foundation Mathematics	20	**Core**		✓	
SKI011	Academic Skills	20	**Core**		✓	

Level 4

Code	Title	Credits	Core/Option	Non-Compensatable	Compensatable	Variance
SKI111	STEM Toolkit	20	**Core**		✓	
BIO111	Biomolecules and cells	20	**Core**		✓	
BIO112	*Anatomy and Physiology* (option)*	20	**Option**		✓	
CHE111	*Physical and Inorganic Chemistry* (option)*	20	**Option**		✓	
SKI121	Integrated Practical Skills	20	**Core**		✓	
MAT121	Data Analysis	20	**Core**		✓	
BIO121	*Biochemistry* (option)*	20	**Option**		✓	
CHE121	*Organic Chemistry* (option)*	20	**Option**		✓	

Level 5

Code	Title	Credits	Core/Option	Non-Compensatable	Compensatable	Variance
BIO211	Pharmacology and Therapeutics	20	**Core**		✓	
BIO212	*Microbiology and Biotechnology* (option)*	20	**Option**		✓	

	CHE211	*Analytical Chemistry* (option)*	20	**Option**		✓	
	SKI211	Work Related Learning	20	**Core**		✓	
	PRO211	Scientific Investigation	20	**Core**		✓	
	BIO221	*Immunology* (option)*	20	**Option**		✓	
	BIO222	*Genetics* (option)*	20	**Option**		✓	
	CHE221	*Medicinal Chemistry* (option)*	20	**Option**		✓	
	CHE222	*Biomaterials* (option)*	20	**Option**		✓	

***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.

18	**Programme Structure** **Full time - September start** *This is the normal route to achieving the FD and we expect the majority of students to follow this.* Level 3 (year 0): The modules in semester 1 introduce the most basic topics in Biology and Chemistry, ensuring the essential concepts that underpin more advanced topics are thoroughly covered. The semester 2 modules build on this, progressing through some more demanding level 3 material in order to adequately prepare students for the level 4 modules in the following year. In both Biology and both Chemistry modules, the topics will be delivered in a context that is relevant to the Biomedical and Pharmaceutical Sciences programme. There are two long and thin modules. The Mathematics module will cover key skills to support the topics in the Biology and Chemistry modules. It will provide practice of mathematical techniques throughout the year and so will be able to support learning in both semester 1 and semester 2 modules. The topics in this module will be sequenced so as to be broadly in line with topics that are delivered in the Biology and Chemistry modules. Similarly, the Academic Skills module will provide essential support throughout the year, covering skills that are necessary for producing a range of forms of coursework and in preparation for sitting examinations. Running long and thin allows tailored support to be offered, broadly synchronised with the assessment in the Biology and Chemistry modules as they are delivered. For example, since exams are only used at the end of semester 2 the topics that specifically deal with exam preparation can be left until later in the planned delivery. Level 4: The first semester aims to provide students with strong foundations in scientific knowledge with options relevant to either bioscience- or chemical-focussed industries. In semester 1, students are encouraged to reflect on their learning and identify common academic skills that they need to develop in order to succeed on the course, as well as specific skills that they wish to gain to aid them in progressing towards a chosen career. There is a focus on the need for the practical application of these skills in the specific occupational sector. Skills development will be covered in the *STEM Toolkit* module, which will also cover some basic mathematical skills to ensure students are well prepared to deal with the calculations required in modules. In semester 2 there is a module based on laboratory skills, and students will also take one option module: studying either Organic Chemistry (the branch of chemistry that is most important to pharmaceutical and other life sciences), or the biochemical principles important in the healthcare and biotechnology sectors. There are no restrictions on the choice of modules, but students who wish to progress into pharmaceutical-based industries or further study would benefit from Organic Chemistry. Likewise, Biochemistry would be useful for students interested in a career or further study in the Biotech sector. The continual contextualisation and application of scientific theory to sector-specific practice ensures students are fully engaged on a practical level which supports high levels of retention.

The contained qualification, Certificate in Higher Education requires the achievement of 120 credits at Level 4.

Level 5:
At this level, students are challenged to become more independent, taking greater control of their learning and further applying theoretical aspects to their chosen sector.
In semester 1 they will be able to study topics of relevance to many bioscience or pharmaceutical industrial sectors as well as to further develop their knowledge of the potential career choices available to them and how to maximise their potential for progressing into such careers. Students will be encouraged to arrange work experience that is most beneficial to their chosen career, but those students who are not able to find suitable work outside the University Centre will be offered internal opportunities and projects.

In semester 2 students are offered a choice of modules to suit their progression choices. Those interested in pharmaceutical-related industries may study Medicinal Chemistry as long as they have studied one of the two chemistry-based modules at level 4. Alternatively, students may choose to study Immunology and learn about disease states and how the human immune system works.

There is also the option to study a module based on biomaterials - in which students will be able to learn about the use of modern materials for implants and prostheses and the strategies for choosing suitable materials for these applications. The alternative to this is to study Genetics and learn about inheritance and how genetic information affects biological processes.

The options allow students to tailor their studies to fit their particular interests or progression ambitions.

The research, design and analysis module ("Scientific Investigation") runs throughout the second year. As students can choose their own topic, it allows them to gain valuable background knowledge and laboratory skills of relevance to whatever area of science they are most interested in. This module will challenge students to organise and manage their own time effectively, leading to highly self-motivated and independent learners.

Full-time structure diagram - September start

Level 3 (Year 0)	
Semester 1	**Semester 2**
Fundamentals of Chemistry (20 credits)	**Further Chemistry (20 credits)**
Fundamentals of Biology (20 credits)	**Further Biology (20 credits)**
Academic Skills (20 credits)	

Foundation Mathematics (20 credits)

Level 4 (Year 1)	
Semester 1	**Semester 2**
STEM Toolkit (20 credits)	**Integrated Practical Skills (20 credits)**
Biomolecules and Cells (20 credits)	**Biochemistry *(option)* OR Organic Chemistry *(option)* (20 credits)**
Anatomy and Physiology *(option)* OR Physical and Inorganic Chemistry *(option)* (20 credits)	**Data Analysis (20 credits)**

Level 5 (Year 2)	
Semester 1	**Semester 2**
Pharmacology and Therapeutics (20 credits)	**Immunology *(option)* OR Medicinal Chemistry *(option)* (20 credits)**
Microbiology and Biotechnology *(option)* OR Analytical Chemistry *(option)* (20 credits)	**Genetics *(option)* OR Biomaterials *(option)* (20 credits)**
Work Related Learning (20 credits)	
Scientific Investigation (20 credits)	

Full time January start to achieve CertHE

This route is only for students who wish to begin the programme at level 4 in January and achieve a CertHE through one year of study. If a student subsequently wanted to complete level 5 for a Foundation Degree, they would have to join the following September intake.

Level 3: a January start is not possible at this level - all students who need to begin the programme via the Foundation Year will have to start in September.

Level 4: in the first semester a lab skills module allows students to develop a range of practical skills that will help them in future modules. Students will also take one option module: studying either Organic Chemistry (the branch of chemistry that is most important to pharmaceutical and other life sciences), or Biochemistry, covering the biochemical principles important in the healthcare and biotechnology sectors. There are no restrictions on the choice of modules, but students who wish to progress into pharmaceutical-based industries or further study would benefit from Organic Chemistry. Likewise, Biochemistry would be useful for students interested in a career or further study in the Biotech sector.
In both semesters, students are encouraged to reflect on their learning and identify skills that they need to develop in order to succeed on the course, as well as in progressing towards a chosen career.

In the next semester, students will extend their scientific knowledge with options relevant to either bioscience- or chemical-focussed industries. There is a focus on the need for the practical application of these skills in the specific occupational sector. Skills development will be covered in the *STEM Toolkit* module, which will also cover some basic mathematical skills to ensure students are well prepared to deal with the calculations required in modules in this semester.
The continual contextualisation and application of scientific theory to sector-specific practice ensures students are fully engaged on a practical level which supports high levels of retention.

The contained qualification, Certificate in Higher Education requires the achievement of 120 credits at Level 4.

Full-time structure diagram - January start (CertHE only)

Level 4 (Year 1)	
Semester 1	**Semester 2**
Integrated Practical Skills (20 credits)	**STEM Toolkit (20 credits)**
Biochemistry *(option)* OR Organic Chemistry *(option)* (20 credits)	**Biomolecules and Cells (20 credits)**
Data Analysis (20 credits)	**Anatomy and Physiology *(option)* OR Physical and Inorganic Chemistry *(option)* (20 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.

This structure will be the main route used for apprentices who would attend the University Centre one day per week.

If a student begins at level 3, the complete set of modules would take 2 years to complete. In year 1, students would study modules that cover Chemistry, and Academic Skills. In year 2 they would cover Maths and Biology.

The complete set of level 4 modules would take 2 years to complete via this route. The modules offered in year 1 deliver the essential study and some mathematical skills (in STEM Toolkit), fundamental chemical and biological properties and functions of biomolecules (in Biomolecules and Cells) and key laboratory skills (in Integrated Practical Skills). The second year contains one core statistics module (Data Analysis) and two optional subject-specific modules.

The level 5 modules would be completed in a single year as two modules (*Work Based Learning and Scientific Investigation*, totalling 40 credits) would be delivered remotely. It is anticipated that this would take the form of project work conducted at the student's place of work with close monitoring and support from University Centre tutors. In the event that laboratory facilities were not available for such project work, paper-based research projects could be undertaken - again with close monitoring and support from University Centre tutors.

In the event of taking on a student part-time who cannot complete *Work Based Learning and Scientific Investigation* remotely, that student would be able to infill into the classes on the full-time programme in order to complete the work for those two modules in year 3.

Part time structure diagram - September start

Structure (Year 0a - level 3 part 1)

Semester 1	Semester 2
Fundamentals of Chemistry (20 credits)	Further Chemistry (20 credits)
Academic Skills (20 credits)	

Structure (Year 0b - level 3 part 2)

Semester 1	Semester 2
Fundamentals of Biology (20 credits)	Further Biology (20 credits)
Foundation Mathematics (20 credits)	

Structure (Year 1)

Semester 1	Semester 2
STEM Toolkit (20 credits)	Integrated Practical Skills (20 credits)
Biomolecules and Cells (20 credits)	

Structure (Year 2)

Semester 1	Semester 2
Anatomy and Physiology *(option)* OR Physical and Inorganic Chemistry *(option)* (20 credits)	Data Analysis (20 credits)
	Biochemistry ***(option)*** OR Organic Chemistry ***(option)*** (both 20 credits)

Structure (Year 3)

Semester 1	Semester 2
Microbiology and Biotechnology (option) OR Analytical Chemistry (option) (20 credits)	Immunology ***(option)*** OR Medicinal Chemistry ***(option)*** (both 20 credits)
Pharmacology and Therapeutics (20 credits)	Genetics ***(option)*** OR Biomaterials ***(option)*** (both 20 credits)
Work Related Learning (20 credits) (delivered as WBL or infill to F/T class)	Scientific Investigation (20 credits) (delivered as SI or infill to F/T class)

Part-time - January start

This route is only for students or apprentices who wish to begin the programme at level 4 in January and achieve a CertHE through two years of study or an FD via three years of study.

Level 3: A January start is not possible at this level - all students who wish to begin the programme via the Foundation Year will have to start in September.

Level 4: In the first semester of year 1, the course will be focussed on developing the lab skills through the study of the *Integrated Practical Skills* module.

In the second semester of year 1, skills development will be covered in the *STEM Toolkit* module, which will also cover some basic mathematical skills to ensure students are well prepared to deal with the calculations required in modules in this semester as well as later in the course. Students will also cover fundamental chemical and biological properties and functions of biomolecules in *Biomolecules and Cells*.

In the first semester of year 2, students will have the opportunity to study an option module: either Organic Chemistry (the branch of chemistry that is most important to pharmaceutical and other life sciences), or Biochemistry, covering the biochemical principles important in the healthcare and biotechnology sectors. There are no restrictions on the choice of modules. They will also study some statistics in the *Data Analysis* module.

In year 2, semester 2, students will extend their scientific knowledge with more options relevant to either bioscience- or chemical-focussed industries. There is a focus on the need for the practical application of these skills in the specific occupational sector.

In Year 3 students will study three modules in the University Centre: one core module and three options. Two further core modules (*Work Based Learning and Scientific Investigation*) will be delivered remotely in the form of project work conducted at the student's place of work with close monitoring and support from University Centre tutors.

Part time structure diagram - January start

Structure (Year 1)

Semester 1	Semester 2
Integrated Practical Skills (20 credits)	STEM Toolkit (20 credits)
	Biomolecules and Cells (20 credits)

Structure (Year 2)

Semester 1	Semester 2
Biochemistry ***(option)*** OR Organic Chemistry ***(option)*** (both 20 credits)	Anatomy and Physiology *(option)* OR Physical and Inorganic Chemistry *(option)* (20 credits)

	Data Analysis (20 credits)	

Structure (Year 3)

Semester 1	Semester 2
Immunology ***(option)*** OR Medicinal Chemistry ***(option)*** (both 20 credits)	Microbiology and Biotechnology (option) OR Analytical Chemistry (option) (20 credits)
Genetics ***(option)*** OR Biomaterials ***(option)*** (both 20 credits)	Pharmacology and Therapeutics (20 credits)
Work Related Learning (20 credits) (delivered as WBL)	Scientific Investigation (20 credits) (delivered as WBL project)

19 Apprenticeships

The programme can be used to support achievement of the Level 5 Technician Scientist, delivered in a day release model over a period of 3 years where students will complete 3 modules per year of study to achieve the Level 4 and Level 5 of the degree but allowing for the completion of work based modules with their employer. End point assessment will be made on completion of a portfolio of work derived from additional tutorial time with an assessor at the end of each academic year. The platform OneFile will be used to collate this.

Support for students begins at recruitment where students complete initial tests. Induction contains an introduction to the structure and regulations of the course in addition to a skills scan and advice on academic skills and library support (with research and referencing). The apprentices receive individual support through tutorials and are assigned a pastoral tutor. All apprentices have access to welfare and may access specialist support through the learning support mentor. The VLE supports apprentices with further resources and extensions and is available 24/7 anywhere with internet access. The apprentices are also supported in the University Centre and their workplace by our Assessor and by their workplace mentor.

The apprentices are taught in specialist laboratories using a mixture of lecture, practical and workshop activities with access to specialist tutorials and additional resources including the course textbook and VLE sites. Tutors on the programme are highly qualified and experienced subject specialists with industry experience.

	End point assessment (EPA) is performed by an external assessor appointed by the end point assessment organisation (currently Marshall). There are different EPA requirements for Laboratory Technician and Technician Scientists but they both have to present a portfolio at the EPA. The portfolio contains evidence accumulated on OneFile and presented in a printed format to the external assessor. For the Laboratory Technician standard, EPA involves an online knowledge test, an observation in their workplace followed by questioning and a structured interview underpinned by a portfolio of evidence. For Technician Scientists standard, the EPA requires the solving of a workplace problem evidenced by a project report, a presentation with questioning and a professional discussion underpinned by a portfolio of evidence.
20	**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 HEALS 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 Higher Education Additional Learning Support team. The *Academic Skills* module (for those starting the course via the Foundation Year) and the *STEM Toolkit* module (delivered in Year 1) assist students in developing the academic skills that will enable students to succeed in their studies in other modules. The *STEM Toolkit* module includes sessions on personal development planning and one covering skills requirements for a range of career progressions. In the second year of the course, the *Work Related Learning* module develops students' knowledge of the current state of the employment market and enhances students' employability skills through an assignment in which they are required to complete a job application and one in which they need to complete a short period of work experience and write a reflective account on what they have learned from doing this.

	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 Google Hangouts. Apprentices will receive additional support in the workplace through mentors and assessors. 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. Apprentices, who would be attending the University Centre one day per week, will have access to an increasing range of textbooks available remotely as e-books. A small number of vital texts that cannot be accessed remotely will be provided as hard copies for apprentices to use outside of the University Centre. Support for preparation for the end-point assessment is built into the apprenticeship timetable. Guidance will be provided for those wishing to progress to the degree apprenticeship.

21	**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, Medical devices and Sterilisation, 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). Almost all 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 industry-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 recently made a significant investment (just under £400k) in several new industry-standard 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. This is particularly well-evidenced in the Integrated Practical Skills core module, through which students gain experience in techniques specific to both bioscience and chemical laboratories. The balance of bioscience and chemistry also sets this programme apart from many others, providing opportunities for students to progress into industries requiring significant chemical knowledge. The provision of optional modules allows students to tailor their studies in an extremely flexible way so that a student can follow a programme that is either heavily dominated by biology-based modules, has a considerable amount of chemistry content, or is a balanced mix of both.

	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.

University Centre Leeds

Appendix 1: **Stage Outcomes (Undergraduate Awards only)**

Key: K = Knowledge and Understanding **C** = Cognitive and Intellectual **P** = Practical Professional **T** = Key Transferable

No.	Programme Outcome	Stage/Level 4(stage 1)	Stage/Level 3(stage 0)
K1	Demonstrate a comprehensive and detailed knowledge of activities and applications within the Biomedical, Bioscience, Chemical or Pharmaceutical industries	Describe activities within relevant industries using scientific knowledge	Recognise activities as 'scientific'
K2	Demonstrate a clear, broad and detailed knowledge of standard scientific procedures and describe aspects of good practice including ethical considerations within relevant industry bases	Describe and identify good practice in relevant industry procedures, including ethical aspects	Demonstrate knowledge of some standard scientific procedures
K3	Explain how hypotheses (devised or provided) may be tested using standard procedures	List individual actions required to perform a practical activity in order to test a hypothesis	Describe simple laboratory activities that contribute to the testing of a hypothesis
K4	Demonstrate a broad, up to date interdisciplinary knowledge of theories and concepts relevant to the current body of scientific understanding within the Biomedical, Bioscience, Chemical or Pharmaceutical industries	Describe, explain and use key elements of the foundation knowledge of theories and concepts	Recall some of the theories and concepts from key areas of Bioscience or Chemical Science
C1	Research, plan, undertake and evaluate a self-managed project in which evidence is synthesised and appraised relevant to Biomedical, Bioscience, Chemical or Pharmaceutical industries	Identify a topic and appropriate research methods to gather information and justify conclusions	Select an appropriate technique or piece of equipment for given laboratory exercises.
C2	Demonstrate both breadth and depth in the application of knowledge to the solution of problems	Gather, record and describe with guidance detailed information from a range of sources	Find information from appropriate sources that is relevant to defined problems
C3	Confidently and creatively identify, analyse and solve complex problems in a scientific context using appropriate knowledge and methods	Identify problems, apply given method accurately and carefully to solve problems creatively	Solve simple problems using provided information
C4	Draw concise and accurate scientific conclusions through the analysis of data including evaluation of the quality and reliability of the data	Gather, record and process data, including some graphical or mathematical analysis, in order to reach conclusions.	Draw conclusions from simple sets of data using any suitable techniques.

No.	Programme Outcome	Stage/Level 4(stage 1)	Stage/Level 3(stage 0)
P1	Respond to changing situations within the industrial environment of a relevant sector, showing knowledge of good practice and current regulations	Act with limited autonomy within defined guidelines, demonstrating ability to follow standard procedures and regulations.	Demonstrate awareness of standard practices and regulations in a scientific industry
P2	Work safely within a laboratory environment and show knowledge of hazards, risks and ethical issues with appropriate responses for relevant industries	Safely use a specified range of standard techniques and demonstrate awareness of common hazards, issues and their resolution	State the necessary precautions to be taken to minimise the risk associated with a specified hazard
T1	Plan, manage and evaluate the acquisition of new knowledge and skills as part of a strategy for employment and future professional development	Identify own learning strengths and articulate personal skills, abilities, interests and motivations and relate these to career opportunities.	Explain own strategy for maximising success in academic and career progression
T2	Communicate clearly, fluently and effectively in a range of styles using technical and specialist language in a professional manner. Engage in academic debate and discussion effectively	Communicate appropriately using scientific language verbally and in writing.	Distinguish between language that is appropriate for scientific writing and other styles of English
T3	Demonstrate the ability to use standard and specialist examples of computer software which are relevant to the industry sector	Use IT tools for specific scientific purposes	Use basic IT tools
T4	Operate as part of a team and evaluate own performance as such	Discuss own role in team activities	Engage in team activities

Appendix 2

Map of Outcomes to Modules

Level 3 (year 0)

	Outcome Key													
Module Titles	K1	K2	K3	K4	C1	C2	C3	C4	P1	P2	T1	T2	T3	T4
Fundamentals of Biology	✓		✓	✓				✓	✓					✓
Further Biology		✓		✓	✓		✓			✓	✓	✓		
Fundamentals of Chemistry		✓		✓		✓	✓			✓		✓		
Further Chemistry			✓	✓	✓			✓					✓	
Foundation Mathematics		✓			✓		✓	✓					✓	
Academic Skills	✓					✓			✓		✓			✓

Stage 1 (level 4)

	Outcome Key													
Module Titles	K1	K2	K3	K4	C1	C2	C3	C4	P1	P2	T1	T2	T3	T4
STEM Toolkit				✓			✓		✓		✓		✓	✓
Biomolecules and Cells	✓			✓		✓	✓		✓			✓		
Anatomy and Physiology (option)		✓		✓		✓		✓			✓			✓
Physical and Inorganic Chemistry (option)		✓		✓		✓					✓			✓
Integrated Practical Skills		✓	✓		✓			✓		✓		✓		
Data Analysis	✓				✓			✓					✓	
Biochemistry (option)	✓	✓	✓			✓				✓				
Organic Chemistry (option)	✓		✓			✓				✓			✓	

Stage 2 (level 5)

	Outcome Key													
Module Titles	K1	K2	K3	K4	C1	C2	C3	C4	P1	P2	T1	T2	T3	T4
Pharmacology and Therapeutics		✓		✓			✓		✓	✓				
Microbiology and Biotechnology (option)	✓		✓		✓			✓	✓	✓				
Analytical Chemistry (option)	✓		✓		✓				✓	✓	✓			
Work Related Learning	✓						✓				✓	✓		✓
Scientific Investigation		✓			✓	✓					✓		✓	✓
Immunology (option)				✓			✓	✓					✓	
Medicinal Chemistry (option)	✓			✓		✓		✓					✓	
Genetics (option)			✓			✓		✓		✓		✓		
Biomaterials (option)			✓			✓		✓				✓	✓	

Appendix 3

Map of Teaching and Learning Methods

Level 3 (year 0)

Module Titles	Methods							
	Lectures	Student led/ interactive/ shared learning seminars	Case Studies	Skills workshops	Practicals (laboratory sessions)	Group activities	Independent / E Learning/ On-line forums	Demonstrations
Fundamentals of Biology	✓			✓	✓		✓	✓
Further Biology	✓			✓	✓	✓	✓	✓
Fundamentals of Chemistry	✓			✓	✓		✓	✓
Further Chemistry	✓			✓	✓		✓	✓
Foundation Mathematics	✓						✓	
Academic Skills	✓	✓	✓	✓		✓	✓	

Level 4

Module Titles	Methods								
	Lectures	Student led/ interactive/ shared learning seminars	Case Studies	Skills workshops	Practicals (lab sessions)	Group activities	Guest speakers	Independent / E Learning/ On-line forums	Demonstrations
STEM Toolkit	✓	✓	✓	✓		✓	✓	✓	
Biomolecules and Cells	✓			✓	✓	✓		✓	✓
Anatomy and Physiology (option)	✓		✓	✓	✓	✓		✓	✓
Physical and Inorganic Chemistry (option)	✓		✓	✓	✓	✓		✓	✓
Integrated Practical Skills				✓	✓	✓		✓	✓
Data Analysis	✓	✓		✓		✓		✓	
Biochemistry (option)	✓			✓	✓	✓		✓	✓
Organic Chemistry (option)	✓			✓	✓	✓		✓	✓

Level 5

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	Demonstration
Pharmacology and Therapeutics	✓		✓		✓	✓		✓	✓
Microbiology and Biotechnology (option)	✓		✓		✓	✓		✓	✓
Analytical Chemistry (option)	✓	✓		✓	✓	✓		✓	✓
Work Related Learning	✓	✓	✓	✓		✓	✓	✓	
Scientific Investigation				✓	✓		✓		✓
Immunology (option)	✓				✓	✓		✓	✓
Medicinal Chemistry (option)	✓		✓		✓	✓		✓	✓
Genetics (option)	✓		✓		✓	✓		✓	✓
Biomaterials (option)	✓		✓		✓	✓		✓	✓

Appendix 4

Map of Assessment Methods

Level 3

	Methods								
Module Titles	Lab Report	Laboratory Notebook Scrutiny	Reflective E-Journal	Data analysis	Problem-based project	Take-home test	Group Presentation	Open-book timed assessment	Timed assessment
Fundamentals of Biology	60% (1200 words, wk9)							40% (60 mins, week 15)	
Further Biology	60% (1200 words, wk25)								40% (60 mins, week 30)
Fundamentals of Chemistry		50% (1000 words, wk7)				50% (48 hours, week 15)			
Further Chemistry				50% (1000 words, wk23)	50% (1000 words, wk30)				
Foundation Mathematics				50% (eq. to 1000 words, wk29)	50% (1000 words, wk17)				
Academic Skills			50% (1000 words, wk19)				50% (15 mins, wk30)		

Level 4

	Methods									
Module Titles	Lab Report	Data collection & analysis	Reflective E-Journal	Production & analysis of a substance	Take-home test	E-Portfolio	Timed assessment	Online timed assessment	Case study	Oral Presentation
STEM Toolkit			50% (1500 words, wk14)			50% (1500 words, wk8)				
Biomolecules and Cells	50% (1500 words, wk14)									50% (15 mins, wk7)
Anatomy and Physiology (option)		50% (1500 words, wk9)					50% (90 mins, wk15)			
Physical and Inorganic Chemistry (option)		50% (1500 words, wk9)						50% (90 mins, wk15)		
Integrated Practical Skills						50% (1500 words, wk29)				50% (15 mins, wk21)
Data Analysis							50% (90 mins, wk19)		50% (1500 words, wk29)	
Biochemistry (option)						50% (1500 words, wk23)	50% (90 mins, wk30)			
Organic Chemistry (option)				50% (1 substance & data eq. to 1500 words, wk23)	50% (24 hours, wk30)					

Level 5

Module Titles	Project Report	Competencies Portfolio	Improve AI-generated work	Essay	Reflective account, negotiated format	Open Book Timed Assessment	Job application	Project proposal	Reflective E-Journal	Timed Assessment	Academic - style poster	Concept maps (Infographics)	Case study
Pharmacology and Therapeutics				40% (1600 words, wk10)		60% (2 hrs, wk 15)							
Microbiology and Biotechnology (option)		40% (1600 words, wk9)						60% (2400 words, wk14)					
Analytical Chemistry (option)					50% (2000 wds or eq. wk14)			50% (2000 words, wk9)					
Work Related Learning							50% (2000 words, wk6)		50% (2000 wds, wk 27)				
Scientific Investigation	100% (4000 wds, wk28)												
Immunology (option)			40% (1600 words, wk23)							60% (2 hours, wk 30)			
Medicinal Chemistry (option)												50% (graphic eq. to 2000 wds, wk 23)	50% (2000 words, wk30)
Genetics (option)										60% (2 hours, wk 30)	40% (15 min, wk25)		
Biomaterials (option)										60% (2 hours, wk 30)			40% (1600 words, wk25)

Appendix 5

University Centre Leeds

Map to Apprenticeship Standard

This table indicates which study units assume responsibility for delivering (shaded) and assessing (x) particular knowledge, skills and behaviors.
Please amend this mapping as required.

Laboratory technician standard (L3) - L4 (year 1 and 2)

		Apprenticeship standard																																							
Level	Study module/unit	K 1	K 2	K 3	K 4	K 7	K 8	K 9	K 10	K 11	K 14	K 15	K 16	K 17	K 19	K 20	K 21	K 22	S 1	S 2	S 3	S 5	S 6	S 7	S 8	S 9	S 10	S 11	S 12	S 13	S 14	S 17	S 19	B 1	B 2	B 3	B 4	B 5	B 6	B 7	B 8	
4	STEM Toolkit			x	x		x		x		x	x		x		x	x	x										x	x	x			x	x					x		
	Biomolecules and cells	x				x	x									x				x	x		x	x							x		x	x		x				
	Anatomy & Physiology (option)		x	x	x								x		x		x					x	x			x	x	x		x			x	x	x	x			x	x	x
	Physical and Inorganic Chemistry (option)		x	x									x									x	x				x	x					x		x	x			x		
	Integrated Practical Skills	x			x		x	x	x	x	x	x		x	x			x	x	x	x	x	x	x	x	x	x	x	x	x		x		x			x			x
	Data Analysis													x	x																x										
	Biochemistry (option)				x	x		x		x			x						x				x	x						x		x				x		x			
	Organic Chemistry (option)				x	x		x		x			x						x				x	x						x		x				x		x			

Technician Scientist standard (L5) - L4 (year 1 and 2) and L5 (year 3)

Level	Study module/unit	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	S	S	S	S	S	S	S	S	S	S	S	B	B	B	B	B	B	

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	8	9	11	12	13	15	1	2	3	4	5	6	
4	STEM Toolkit				x		x				x	x													x		x	x		x				x	x	
	Biomolecules and cells		x	x	x	x			x			x			x		x	x	x	x			x	x		x							x		x	
	Anatomy & Physiology (option)		x	x	x	x			x			x			x		x	x	x	x			x	x		x							x		x	
	Physical and Inorganic Chemistry (option)										x		x	x		x													x	x	x	x				
	Integrated Practical Skills	x	x		x	x	x	x	x	x	x				x		x	x	x	x	x	x	x	x	x	x		x	x	x		x	x		x	
	Data Analysis										x			x												x	x				x		x			x	
	Biochemistry (option)	x		x							x			x	x											x				x	x		x				
	Organic Chemistry (option)	x									x			x	x			x				x		x	x				x	x		x				

Level	Study module/unit	K 1	K 2	K 3	K 4	K 5	K 6	K 7	K 8	K 9	K 10	K 11	K 12	K 13	K 14	K 15	K 16	S 1	S 2	S 3	S 4	S 5	S 6	S 8	S 9	S 11	S 12	S 13	S 15	B 1	B 2	B 3	B 4	B 5	B 6	
5	Pharmacology and Therapeutics				x	x				x	x	x													x		x	x		x				x	x	
	Microbiology and Biotechnology (option)		x	x	x	x			x			x			x		x	x	x	x			x	x		x							x		x	
	Analytical Chemistry (option)		x	x	x	x			x			x			x		x	x	x	x			x	x		x							x		x	
	Work Related Learning										x		x	x		x													x	x	x	x				
	Scientific Investigation	x	x		x	x	x	x	x						x		x	x	x	x	x	x	x	x	x	x		x	x	x		x	x		x	
	Immunology (option)										x			x											x	x				x		x			x	
	Medicinal Chemistry (option)	x									x			x	x			x				x		x	x				x	x		x				
	Genetics (option)	x		x							x			x	x										x				x	x		x				
	Biomaterials (option)	x												x	x			x						x	x				x	x		x				