



PROGRAMME SPECIFICATION

1. General information

| | |
|--|--|
| Awarding body / institution | Leeds Trinity University |
| Teaching institution | Leeds Trinity University |
| 'Parent' Faculty (<i>ICE / BCDI / SHS</i>) | FSHS |
| 'Parent' School | Health & Life Science |
| Professional accreditation body (<i>if applicable</i>) | Institute of Biomedical Science (IBMS) |
| Final award (<i>eg. BA Hons</i>) | BSc (Hons) Biomedical Science |
| Title of programme(s) | Biomedical Science |
| Subsidiary award(s) (<i>if any</i>) | Certificate of Higher Education in Biomedical Science Diploma of Higher Education in Biomedical Science Ordinary Degree – BSc Biomedical Science |
| Honours type (<i>Single / Joint / Combined</i>) | Single |
| Duration and mode(s) of study | 3 Years full-time |
| Month/year of approval of programme | 2023 |
| Start date (this version) (<i>month and year</i>) | September 2023 |
| Periodic review next due (<i>academic year</i>) | 2027/28 |
| HECoS subject code(s) | 100265 Biomedical Sciences (100%) |
| UCAS course code & route code (available from Admissions) | B900 |
| SITS codes (<i>Course / Pathway / Route</i>) (available from Student Administration) | Route Code – BIOMEDS Course Code - BSLTUBIMSC |
| Delivery venue(s) | Leeds Trinity University |

2. Aims of the programme

Rationale and general aims, including what is special about this programme (from the student's and a marketing perspective)

The BSc (Hons) Biomedical sciences course is designed for students with an interest in how the human body works in health and disease with a focus on practical skills training. The course has been designed by research active Biomedical Science staff with input from NHS plus Industrial experts and practitioners to give an up to date, challenging, exciting, and fun course. The University has invested in an up-to-date laboratory where you will learn the latest skills on a practical focused course. You will gain a solid understanding of molecular, cellular, and organ-

level processes underlying human health. You will also learn about pathological changes that occur in chronic and infectious diseases plus measurements that are used for diagnosis. You will also learn some of the latest technologies being applied by biomedical scientists to improve diagnoses and treatments.

This course is new and has been developed based around the latest QAA Biomedical Science statement, Institute of Biomedical Science (IBMS) accreditation, Royal Society of Biology (RSB) accreditation, plus the latest Health and Care Professions Council (HCPC) Biomedical Scientist requirements.

The course is specifically designed for those wishing to build a career in biomedical science and is suitable for anyone with a broader interest in human biology, who wishes to build a career in any related bioscience area. The skills learned apply to many possible career paths and after completion of the course allows students to apply to jobs in careers such as scientific research, NHS laboratory scientists, clinical trials and drug development, public health and infection control, forensic science, food safety, government advisory, scientific and medical writing, teaching and many more areas. You will be taught by expert staff and also external experts to make sure you see the potential of your degree in the many areas that you could go on to work in.

Aims of the BSc (Hons) Biomedical Sciences course are:

- To deliver the programme of study by research active scientists and external experts in an inclusive and supportive learning environment with modern facilities.
- To provide a comprehensive, current and relevant practical based understanding of Biomedical Science applied to human health and disease.
- To encourage all students to achieve their individual potential without impediment.
- To teach graduates continuing professional development as a fundamental attribute of lifelong learning in academic and professional life.
- To develop transferable skills that enhance employability and postgraduate education prospects.
- To ensure students completing the course have the problem-solving skills to apply their understanding of Biomedical Science in the contexts of biomedical research, biotechnology, diagnostics, public health, therapeutics and the wider bio-industries.
- To enable students to communicate effectively.
- To relate knowledge from the laboratory practical work undertaken to a variety of biomedical settings
- To produce graduates with an understanding of the importance of equality, diversity and inclusivity in both professional and personal settings.
- To produce graduates capable of undertaking scientific research and disseminating their results

3. Student learning outcomes of the programme

Learning outcomes in terms of:

- **knowledge and understanding (K)**
- **intellectual / cognitive / 'thinking' skills (I)**
- **practical skills specific to the subject (P)**
- **employability skills (postgraduate) (E) or attributes and skills (undergraduate) (AS)**

The 'K1', etc codes are used in section 7b) and module descriptors to refer to each of these learning outcomes.

Level 4 course learning outcomes

On successful completion of Level 4 of the programme, students will be able to demonstrate:

K1/4 understanding the key concepts of measurement of human disease related changes, plus the regulatory requirements for obtaining and using human samples in Biomedical Science.

- K2/4 understanding of key concepts involved in prokaryotic and eukaryotic cell biology and life cycles, biodiversity, natural selection and the evolution of organisms.
- K3/4 understanding of the structure and function plus endocrine and neuronal control of the human body; its component parts and major systems (cardiovascular, circulatory, digestive, endocrine, immune, nervous, renal, respiratory, and urogenital); plus, an understanding of disease effects on these systems.
- K4/4 understanding of key concepts in biochemistry, genetics and molecular biology; including structure and function of biomolecules, cellular metabolism, and the structure, function and regulation of genes.
- I1/4 use of analytical techniques appropriate to Biomedical Science data generated *in vivo*, *in vitro* and *in silico*.
- I2/4 critical evaluation of information sources relevant to biochemistry, cell biology, genetics, haematology, immunology, microbiology, molecular biology, pharmacology and physiology to assess the quality of the information.
- I3/4 effective oral and written communication of Biomedical Science results and arguments.
- I4/4 how to increase your own knowledge base of Biomedical Science through the ability to access library resources, and appropriate online material and undertake simple research tasks.
- P1/4 use of core biomedical laboratory techniques to safely work with laboratory equipment and reagents.
- P2/4 use of relevant numeracy and statistical techniques to present meaningful data.
- P3/4 use of computer-based analysis such as bioinformatics in a Biomedical Science setting.
- P4/4 use of standardised methodology and quality control in the laboratory.

Level 5 course learning outcomes

On successful completion of Level 5 of the programme, students will have demonstrated:

- K1/5 critical understanding of the causes and consequences of diseases associated with abnormal immune function, and advances in immunological methods.
- K2/5 detailed knowledge of current methods of isolation, identification, characterisation, and classification of a diverse range of microorganisms associated with human disease, host-pathogen interactions at molecular, organismal and population levels, body response mechanisms, including the immune responses, and how they affect human health.
- K3/5 high level understanding of human genetics and patterns of inheritance. Outline methods of genetic testing and screening including Bioinformatics. Reflect upon best practice to capitalise upon patient diversity, support equality and inclusion, and acknowledge the ethical and social implications of current and historic scientific research and publication.
- K4/5 detailed knowledge of haematological disease including anaemias, haematological malignancies, haemorrhagic and thrombotic disease plus the key requirements for blood transfusion.
- I1/5 the ability to devise and perform experiments to provide new information and support innovation, evaluate experimental methods for investigation in biomedical sciences, understand and deploy controls and select appropriate statistical methods for data analysis, deploy relevant software packages and evaluate their application to experimental data.
- I2/5 using the Clinical disease knowledge base in aiding the diagnosis, monitoring and treatment of immunological, microbiological and haematological disorders.
- I3/5 application of genetic screening information in the identification of patients with or at risk of disease.
- I4/5 application of pharmacological practices in the discovery and development of treatment and monitoring of disease.
- P1/5 ability to prepare and deploy standard operating procedures, COSHH forms, risk assessments and ethics applications for laboratory investigation.
- P2/5 use of immunological and microbiological laboratory techniques applied to infectious diseases to allow identification of changes in immune system and microorganisms.

P3/5 use of molecular assays to identify changes in mRNA and proteins plus study DNA in human disease settings.

P4/5 use of haematological techniques in human disease and blood transfusion settings.

Level 6 course learning outcomes

On successful completion of Level 6 of the programme, students will have demonstrated:

K1/6 critical understanding of current cytopathology and histopathology technologies in sample preparation and microscopic examination of cells and tissues, including their gross structure, ultrastructure and changes occurring during disease.

K2/6 critical understanding of different elements found in human blood, cerebrospinal fluid, saliva and urine in normal and disease states, the principles of biochemical investigation used in the diagnosis, treatment and monitoring of disease.

K3/6 critical understanding of measurements of biochemical, cytopathology, haematological, histopathology; immunological and microbiological changes in disease diagnosis plus integration of the measures into disease and therapy monitoring.

K4/6 successfully design, complete and report on an independent research project within a Biomedical Science area. Deliver the project aims through timely delivery of strategic objectives. Record, analyse and interpret results, and disseminate the project outcomes and/or findings in a detailed and coherent way in a style appropriate to and respectful of the specified audience.

I1/6 solve the complex problems arising during the course of a research study and critically compare findings with expectations from previously published material.

I2/6 plan and use a mixture of laboratory or computer-based data generation techniques to answer a specific set of aims in a Biomedical Science research project.

I3/6 engage in group work to develop a commercially relevant Biomedical Science proposal.

I4/6 ability to arrive at a diagnosis using a mixture of published information and case study data.

P1/6 competence in use of multiple analytical techniques to answer a series of research questions.

P2/6 compliance and understanding of ethical plus health and safety regulations associated with a Biomedical Science research project.

P3/6 use of clinical biochemistry, cytopathology and histopathology techniques in the laboratory.

P4/6 use of patient data to aid diagnosis.

Employability skills are embedded and assessed throughout your programme and we use an Attributes and Skills Framework (AS1-AS9) set of employability outcomes at all levels of study.

AS1 **Working Independently** – prioritising workload, anticipating and troubleshooting potential problems, and achieving this without requiring continual oversight from a supervisor or manager.

AS2 **Research & Thinking Critically** – systematic investigation of resources to identify relevant information. Critical thinking refers to a process of independent scrutiny, allowing formation of a well-reasoned opinion for application of the research to decision-making and action.

AS3 **Digital Confidence** – identifying, learning and confident adoption of digital tools, applications and software to improve existing processes, meet emerging challenges or develop new approaches.

AS4 **Adaptability** – the ability to make the most of changing circumstances and adapt to new conditions.

- AS5 **Resilience** – the ability to recognise that you will be exposed to adversity but that you will be able to respond positively and ultimately adapt and grow from challenging events.
- AS6 **Professional Outlook** – preparing yourself to successfully research, plan and apply for opportunities through effectively articulating your skills and attributes whilst understanding how to present yourself in professional working environments to achieve your career goals.
- AS7 **Effective Communication** – the ability to work cooperatively with others to achieve a group objective and the recognition that good leadership empowers achievement of collective goals through combined efforts.
- AS8 **Ethics, Diversity, Sustainability** – making a positive impact on society and the environment as a whole.
- AS9 **Enterprise and Entrepreneurship** – entrepreneurship is the application of enterprise behaviours, attributes and competencies into the creation of cultural, social, or economic value. Enterprise is generating and applying ideas that are practical when undertaking a new venture or project.
- See also the learning outcomes for subsidiary awards set out in section 4 below.

3a External benchmarks

Statement of congruence with the relevant published subject benchmark statements (including appropriate references to any PSRB, employer or legislative requirements)

The QAA subject benchmark for Biomedical Science (2023) has been used alongside the latest Institute of Biomedical Science (IBMS) QAA mapping documents, which has also been mapped to module learning outcomes and assessments.

The course has been mapped to Institute of Biomedical Science Criteria and Requirements for the Accreditation and Re-accreditation of BSc (Hons) in Biomedical Science September 2022 – July 2023 version; the Handbook for the Royal Society of Biology’s Accreditation Programme August 2019 and the Health & Care Professions Council Standards of proficiency - Biomedical scientists (2023).

(See attached mapping documents)

4. Learning outcomes for subsidiary awards

| Guidance | |
|--|---|
| <p>The assessment strategy is designed so that each of these outcomes is addressed by more than one module at Level 4.</p> | <p>Learning outcomes for the award of <u>Certificate of Higher Education</u>:</p> <p>On successful completion of 120 credits at Level 4, students will have demonstrated an ability to:</p> <ul style="list-style-type: none"> i) understand the key concepts of measurement of human disease related changes, plus the regulatory requirements for obtaining and using human samples in Biomedical Science. ii) understand of key concepts involved in prokaryotic and eukaryotic cell biology and life cycles, biodiversity, natural selection and the evolution of organisms. |

The assessment strategy is designed so that each of these outcomes is addressed by more than one module over Levels 4 & 5.

- iii) understand of the structure and function plus endocrine and neuronal control of the human body; its component parts and major systems (cardiovascular, circulatory, digestive, endocrine, immune, nervous, renal, respiratory, and urogenital); plus, an understanding of disease effects on these systems.
- iv) understanding of key concepts in biochemistry, genetics and molecular biology, including structure and function of biomolecules, cellular metabolism, and the structure, function and regulation of genes.
- v) use of analytical techniques appropriate to Biomedical Science data generated *in vivo*, *in vitro* and *in silico*.
- vi) critically evaluate of information sources relevant to biochemistry, cell biology, genetics, immunology, microbiology, molecular biology, pharmacology and physiology to assess the quality of the information.
- vii) effective oral and written communication of Biomedical Science results and arguments.
- viii) how to increase your own knowledge base of Biomedical Science through the ability to access library resources, and appropriate online material and undertake simple research tasks
- ix) use of core biomedical laboratory techniques to safely work with laboratory equipment and reagents.
- x) use of numeracy and statistical techniques to present meaningful data.
- xi) use of computer-based analysis such as bioinformatics in a Biomedical Science setting.
- xii) use of standardised methodology and quality control in the laboratory.

and will have had specific opportunities to display transferable skills relevant to employment related to the discipline.

Learning outcomes for the award of Diploma of Higher Education:

On successful completion of 240 credits, including 120 at Level 5, students will have demonstrated, **in addition to the outcomes for a Certificate**:

- i) critical understanding of the causes and consequences of diseases associated with abnormal immune function, and advances in immunological methods.
- ii) detailed knowledge of current methods of isolation, identification, characterisation, diversity, and classification of microorganisms associated with human disease, host-pathogen interactions at molecular, organismal and population levels, body response mechanisms, including the immune responses, and how they affect human health.
- iii) high level understanding of human genetics and patterns of inheritance. Outline methods of genetic testing and screening including Bioinformatics. Reflect upon best practice to capitalise upon diversity, support equality and inclusion, and acknowledge the ethical and social implications of current and historic scientific research and publication. In turn, appreciate the value of drawing upon diverse approaches and perspectives to achieve goals.

- iv) detailed knowledge of haematological disease including anaemias, haematological malignancies, haemorrhagic and thrombotic disease; the key requirements for blood transfusion.
- v) the ability to devise and perform experiments to provide new information and support innovation, evaluate experimental methods for investigation in biomedical sciences, understand and deploy controls and select appropriate statistical methods. Use relevant software packages and evaluate their application to experimental data.
- vi) using the Clinical disease knowledge base in aiding the diagnosis, monitoring and treatment of immunological, microbiological and haematological disorders.
- vii) application of genetic screening information in the identification of patients with or at risk of disease.
- viii) application of pharmacological practices in the discovery and development of treatment and monitoring of disease.
- ix) ability to prepare and deploy standard operating procedures, COSHH forms, risk assessments and ethics applications for laboratory investigation.
- x) use of immunological and microbiological laboratory techniques applied to infectious diseases to allow identification of changes in immune system and microorganisms.
- xi) use of molecular assays to identify changes in mRNA and proteins plus study DNA in human disease settings.
- xii) use of haematological techniques in human disease and blood transfusion settings.

and will have had the opportunity to develop transferable skills relevant to employment related to the discipline including successful completion of at least one professional placement or school-based training component.

Learning outcomes for the award of an Ordinary Degree:

On successful completion of 300 credits, including 60 at Level 6, students will have demonstrated, **in addition to the outcomes for a Diploma:**

- i) critical understanding of current cytopathology and histopathology technologies in sample preparation and microscopic examination of cells and tissues, including their gross structure, ultrastructure and changes occurring during disease.
- ii) critical understanding of different elements found in human blood, cerebrospinal fluid, saliva and urine in normal and disease state, the principles of biochemical investigation used in the diagnosis, treatment and monitoring of disease.
- iii) critical understanding of measurements of biochemical, cytopathology, haematological, histopathology; immunological and microbiological changes in disease diagnosis plus integration of the measures into disease and therapy monitoring.
- iv) ability to arrive at a diagnosis using a mixture of published information and case study data.
- v) use of clinical biochemistry, cytopathology and histopathology techniques in the laboratory.
- vi) use of patient data to aid diagnosis.

The assessment strategy is designed so that each of these outcomes is addressed by more than one module over Levels 4, 5 & 6.

OR

- vii) successfully design, perform and report on an independent research project within a Biomedical Science area. Deliver the project aims through timely delivery of strategic objectives. Record, analyse and interpret results, and disseminate the project outcomes and/or findings in a detailed and coherent way in a style appropriate to and respectful of the specified audience.
- viii) solve the complex problems arising during a research study and critically compare findings with expectations from previously published material.
- ix) plan and use a mixture of laboratory or computer-based data generation techniques to answer a specific set of aims in a Biomedical Science research project.
- x) engage in group work to develop a commercially relevant Biomedical Science proposal.
- xi) competence in use of multiple analytical techniques to answer a series of research questions.
- xii) compliance and understanding of ethical plus health and safety regulations associated with a Biomedical Science research project.

and will have had the opportunity to develop transferable skills relevant to employment related to the discipline including successful completion of two professional placements or school-based training placements.

5. Content

Summary of content by theme

(providing a 'vertical' view through the programme)

Level 4 provides you with the foundation in biomedical science areas that underpin the subsequent teaching in Levels 5 and 6. You will be taught the core skills for working in the laboratory, professional values, how to research and analyse data plus how to effectively communicate your knowledge. The use of bioinformatics and artificial intelligence (AI) will also be introduced at this level. The key areas of anatomy, biochemistry, cell biology, genetics, haematology, immunology, microbiology, molecular biology, pharmacology, and physiology will be covered at this level. The core clinical areas covered in Levels 5 and 6 will all be introduced in the Level 4 teaching. You will also undertake a professional challenge alongside students from other disciplines.

Level 5 provides more advanced lab training with an emphasis on how you would set up procedures in a professional setting. Quality management will be introduced, and you will also be allocated a supervisor in preparation for the Level 6 Research Project module. You will also be taught about ethics and safety regulations [including Risk Assessments (RA), Control of Substances Hazardous to Health (COSHH), plus Standard Operating Procedure (SOP)], and must complete assessments of ethics plus safety relevant to your allocated research project. For this teaching a standard ethics questionnaire will be employed and any projects requiring a more detailed application will be put through the University ethics procedures. You will continue to build upon your knowledge and will carry out work-based learning in a placement setting. Core clinical areas required by the Institute of Biomedical Science are taught in modules covering Clinical Genetics, Clinical Immunology, Haematology, Medical Microbiology, and Transfusion

Science. Pharmacology, Bioinformatics and systems biology areas will also be expanded in these modules. External experts will be brought in to cover specific clinical specialisms and give you insight into the use of these in a clinical setting.

Level 6 completes the core clinical areas required by the Institute of Biomedical Science in modules covering Cellular Pathology, Clinical Biochemistry and Near Patient Testing. You will also undertake a problem-based learning module to bring together the knowledge gained in all levels to help solve complex diagnostic problems in a series of case studies. You will undertake an individual research project, using the laboratory skills covered in Levels 4 and 5 whilst adhering to the requirements of ethics, RA's, COSHH and SOPs relevant to the research. As part of a team, you will carry out a group enterprise activity to look at the commercialisation of a research idea and present the idea in a Dragons Den style assessment.

6. Structure

BSc (Hons) Biomedical Science (Single Honours)

Duration: 3 years full-time

Total credit rating: 360 (180 ECTS)

Level 4 – with effect from September 2023

Core: Students are required to take:

| | | | |
|---------|-------------------------------|-----------|------------|
| BIO4013 | Biomedical Science Skills + | Sem 1 & 2 | 30 credits |
| BIO4023 | Cell Biology & Microbiology + | Sem 1 & 2 | 30 credits |
| BIO4033 | Systems Physiology + | Sem 1 | 30 credits |
| BIO4043 | Molecular Biochemistry + | Sem 2 | 30 credits |

Option: N/A:

Level 5 – with effect from September 2024

Core: Students are required to take:

| | | | |
|---------|--------------------------------------|-----------|------------|
| BIO5013 | Professional Biomedical Practice + | Sem 1 & 2 | 30 credits |
| BIO5023 | Clinical Immunology & Microbiology + | Sem 1 & 2 | 30 credits |
| BIO5033 | Molecular Medicine + | Sem 1 | 30 credits |
| BIO5043 | Haematology & Transfusion Science + | Sem 2 | 30 credits |

Option: N/A:

Level 6 – with effect from September 2025

Core: Students are required to take:

| | | | |
|---------|---------------------------------|-----------|------------|
| BIO6013 | Chemical & Cellular Pathology + | Sem 1 | 30 credits |
| BIO6023 | Integrated Pathobiology + | Sem 2 | 30 credits |
| BIO6045 | Research Project + | Sem 1 & 2 | 45 credits |
| BIO6015 | Bioentrepreneurship + | Sem 1 | 15 credits |

Option: N/A:

Indicate as applicable:

+ The indicated module(s) are not available to visiting students.

7. Learning, teaching and assessment

7a) Statement of the strategy for learning, teaching and academic experience for the programme

Concise reference should be made to the LTAE Strategy 2022-26.

Please also refer to how graduate skills/attributes are developed throughout the programme.

The BSc (Hons) Biomedical Science course is a new course designed to adapt in response to the rapidly changing healthcare settings that our graduates will enter. The course is taught to meet the demand for multi-skilled, IT literate, confident, globally aware problem-solving professionals in the Biomedical Science sector plus related bioscience areas. Our teaching and learning strategy is designed to produce scientists who demonstrate competency in a wide range of laboratory techniques, who understand all the regulatory components of laboratory work, who can work effectively in modern highly automated biomedical laboratories and who have the required laboratory problem solving skills to make them valuable assets to any employer. The course is by nature interdisciplinary with the aim to provide a broad range of practical and conceptual knowledge relevant to Biomedical Science. Student engagement in discussion and practical activity with research active staff plus visiting experts will provide them with a springboard to the future and allow them to develop as independent researchers. The course builds graduate attributes that support employability and workplace effectiveness, with group working a key component of the teaching.

The teaching and learning methods of the course are directly related to the aims and learning outcomes identified above. The course is designed to lead students through key theoretical concepts with broad understanding and basic skills across all Biomedical Science areas. Acquisition of focused practical knowledge, understanding and expert laboratory skills plus computer skills are central. Before graduation we strongly encourage and support our students to identifying a biomedical science subject area of particular interest to them and we ensure that they are aware of the professional opportunities open to them for their future careers.

All levels of the teaching contain a module with an Enterprise/Employability component linked to the Biomedical Science teaching. At Level 4 in the Biomedical Science Skills module the students complete the University 'Professional Challenge'. This is a University wide Level 4 activity and students will work in groups with students from other disciplines to solve a challenge. Whilst not a specific Biomedical challenge this activity fosters group and interdisciplinary working that will be essential components of their careers after graduation. At Level 5 the Professional Biomedical Practice module includes a work placement activity and students are assessed on their application for the placement, participation in the placement and a reflection on what they have learned from the activity. In Level 6 the Bioentrepreneurship module taught component covers the key processes involved in the commercialisation of Biomedical Science ideas. Students will also participate in a Group "Dragons Den" style presentation of an idea they have worked on.

The course has a strong emphasis on practical skills associated with the laboratory and computer analysis of data. All students also undertake an individual practical project in the final year Research Project module that is laboratory or computer based for the data generation. Students are also introduced to the regulatory components that need to be complied with when undertaking laboratory or computer based research at Level 4 in the Biomedical Science Skills module. In Level 5 students are allocated to a research project and will complete an ethics application plus relevant health and safety forms for their given project area. In Level 6 they will undertake the research and will need to ensure that the ethics and safety regulations are adhered to.

Every module at Levels 4, 5 and 6, with the exception of the Level 6 Bioentrepreneurship and Integrated Pathobiology modules has laboratory or computer practical teaching and associated assessments in the form of laboratory competency tests, practical portfolios, practical reports, practical data analysis and a research project write up.

The knowledge and intellectual skills are assessed using essays, portfolios and exams designed with academic rigour to meet the requirements of the professional bodies associated with Biomedical Science. All exams are closed book and sat under examination conditions.

Pre-live-post teaching model

1. Preparation:

Students will be given brief recorded introductions covering the key background to the live session. A set of clear tasks to support them in preparing for live (synchronous) teaching in the form of quiz questions, handouts to read or online material to source will be used to set the scene for the live session. For all Laboratory and Computer practical sessions students will be provided with digital access to the handouts detailing procedures they will be using. All practical based teaching will be preceded by a Lecture or Tutorial session where advice about the practical session will be given.

2. Live:

Live (synchronous) teaching will be delivered as Lectures, Tutorials plus Laboratory and Computer practical sessions. Lectures will be interactive with discussion, debate plus question-and-answer sections built into the delivery. The Tutorials, Laboratory and Computer practical sessions will be designed around active learning, providing students with valuable opportunities to build on preparation tasks, interact with staff and peers and be provided opportunities to surface any misunderstandings. For practical and tutorial sessions linked to assessments students will be provided with appropriate material during the live session. Tutorial sessions may be used to address queries from previous lectures, tutorials and practical sessions.

3. Post:

Follow-up activities will include clear opportunities to check understanding, for staff to receive feedback from students and to inform subsequent sessions and students to apply learning to new situations or contexts. For live session online forums will be available for students to anonymously ask questions and the answers to these will either be posted up by staff in the forum, covered in the preparation session for the next scheduled teaching or included in the next scheduled teaching session. Students will also have contact details for staff delivering the session can directly question the staff. Questions and answers will be shared with all students to ensure equal treatment.

Details of Assessment

Level 4

| | | | |
|---------|--|-----------|------------|
| BIO4013 | Biomedical Science Skills Assessments: Laboratory Competency test 40%; Disease Data analysis 30%; Professional Challenge reflection 30%; Professional Challenge participation Pass/Fail component | Sem 1 & 2 | 30 credits |
| BIO4023 | Cell Biology & Microbiology Assessments: Cell Biology Exam 50%; Microbiology Practical portfolio 50% | Sem 1 & 2 | 30 credits |
| BIO4033 | Systems Physiology Assessments: Physiology Practical Report 50%; Systems and their diseases portfolio 50% | Sem 1 | 30 credits |
| BIO4043 | Molecular Biochemistry Assessments: Practical Techniques Portfolio 50%; Molecular Biochemistry Exam 50% | Sem 2 | 30 credits |

Level 5

| | | | |
|---------|---|-----------|------------|
| BIO5013 | Professional Biomedical Practice Assessments: Interview plus CV & Application 20%; Research Project Design 50%; Placement reflection (30%) | Sem 1 & 2 | 30 credits |
|---------|---|-----------|------------|

| | | | |
|---------|--|-----------|------------|
| BIO5023 | Clinical Immunology & Microbiology Assessments: Clinical Immunology Essay 50%; Infectious Disease Practical portfolio 50% | Sem 1 & 2 | 30 credits |
| BIO5033 | Molecular Medicine Assessments: Pharmacological data analysis 50%; Bioinformatics and Molecular Biology Exam 50% | Sem 1 | 30 credits |
| BIO5043 | Haematology & Transfusion Science Assessments: Blood Practical Report 50%; Haematology and Transfusion Exam 50% | Sem 2 | 30 credits |

Level 6

| | | | |
|---------|---|-----------|------------|
| BIO6045 | Research Project Assessments: Poster presentation 10%; Research Project 60%; Project Viva-voce Exam 30% | Sem 1 & 2 | 45 credits |
| BIO6015 | Bioentrepreneurship Assessments: Executive Summary plus Business Model Canvas 40%; Group presentation 60% | Sem 1 | 15 credits |
| BIO6013 | Chemical & Cellular Pathology Assessments: Integrated Practical Report 50%; Pathology Annotated Bibliography Portfolio 50% | Sem 1 | 30 credits |
| BIO6023 | Integrated Pathobiology Assessments: Diagnostic data analysis 50%; Case Studies Portfolio 50% | Sem 2 | 30 credits |

7b) Programme learning outcomes covered

| Level 4 <i>Adjust LO codes as necessary.</i> ↓ | Assessed learning outcomes of the programme | | | | | | | | | | | | Skills development | | | | | | | | |
|--|---|---------------------------------|-------------------|-----------------------------|-----------------------|-----------------------------------|--------------------------|---------------------------|--------------------------------|-------------------------------|-----------------------------------|---------------------------|-----------------------|--------------------------------|--------------------|--------------|------------|----------------------|-------------------------|-----------------------------------|---------------------------------|
| | K1/4 | K2/4 | K3/4 | K4/4 | I1/4 | I2/4 | I3/4 | I4/4 | P1/4 | P2/4 | P3/4 | P4/4 | AS1 | AS2 | AS3 | AS4 | AS5 | AS6 | AS7 | AS8 | AS9 |
| Lighter or hatched shading indicates modules that are not core, ie. not all students on this programme will undertake these. | Biomedical integration | Cellular & Microbiology systems | Core body systems | Molecular & Genetic systems | Analytical techniques | Biological information evaluation | Communication of results | Increasing knowledge base | Core Biomedical Lab techniques | Numeracy and statistical data | Bioinformatic computer techniques | Lab standards and quality | Working Independently | Research & Thinking Critically | Digital Confidence | Adaptability | Resilience | Professional Outlook | Effective Communication | Ethics, Diversity, Sustainability | Enterprise and Entrepreneurship |
| BIO4013 Biomedical Science Skills | | | | | | | | | | | | | | | | | | | | | |
| BIO4023 Cell Biology & Microbiology | | | | | | | | | | | | | | | | | | | | | |
| BIO4033 Systems Physiology | | | | | | | | | | | | | | | | | | | | | |
| BIO4033 Molecular Biochemistry | | | | | | | | | | | | | | | | | | | | | |

| Level 5 | Assessed learning outcomes of the programme | | | | | | | | | | | | Skills development | | | | | | | | | | |
|--|---|--------------------------------|------------------------------------|--------------------------|-----------------------|------------------------------|----------------------------------|-----------------------------|----------------------------|---------------------------------------|-------------------------------------|---------------------------|--------------------|-----------------------|--------------------------------|--------------------|--------------|------------|----------------------|-------------------------|-----------------------------------|---------------------------------|--|
| | <i>Adjust LO codes as necessary. ↓</i> | | | | | | | | | | | | | AS1 | AS2 | AS3 | AS4 | AS5 | AS6 | AS7 | AS8 | AS9 | |
| | K1/5 | K2/5 | K3/5 | K4/5 | I1/5 | I2/5 | I3/5 | I4/5 | P1/5 | P2/5 | P3/5 | P4/5 | | | | | | | | | | | |
| | Immunological disorders and methods | Microorganism characterisation | Genetic testing and Bioinformatics | Haematological disorders | Experimental analysis | Using disease knowledge base | Application of genetic screening | Pharmacological application | SOPs, COSHH, RA and ethics | Immunological and microbiological lab | DNA, RNA and protein lab techniques | Haematological techniques | | Working Independently | Research & Thinking Critically | Digital Confidence | Adaptability | Resilience | Professional Outlook | Effective Communication | Ethics, Diversity, Sustainability | Enterprise and Entrepreneurship | |
| Lighter or hatched shading indicates modules that are not core, ie. not all students on this programme will undertake these. | | | | | | | | | | | | | | | | | | | | | | | |
| BIO5013 Professional Biomedical Practice | | | | | | | | | | | | | | | | | | | | | | | |
| BIO5023 Clinical Immunology & Microbiology | | | | | | | | | | | | | | | | | | | | | | | |
| BIO5033 Molecular Medicine | | | | | | | | | | | | | | | | | | | | | | | |
| BIO5043 Haematology & Transfusion Science | | | | | | | | | | | | | | | | | | | | | | | |

| Level 6 | Assessed learning outcomes of the programme | | | | | | | | | | | | Skills development | | | | | | | | | |
|---------------------------------------|---|--------------------------|--------------------------------|-----------------|-------------------------|---------------------------|-----------------------|----------------------------|------------------------------|-------------------------------|--------------------------------|----------------------------------|--------------------|-----------------------|--------------------------------|--------------------|--------------|------------|----------------------|-------------------------|-----------------------------------|---------------------------------|
| | <i>Adjust LO codes as necessary. ↓</i> | | | | | | | | | | | | | AS1 | AS2 | AS3 | AS4 | AS5 | AS6 | AS7 | AS8 | AS9 |
| | K1/6 | K2/6 | K3/6 | K4/6 | I1/6 | I2/6 | I3/6 | I4/6 | P1/6 | P2/6 | P3/6 | P4/6 | | | | | | | | | | |
| | Cellular and tissue pathology | Biochemical measurements | Integration of lab information | Research design | Complex problem solving | Research project planning | Group Enterprise idea | Diagnosis based on results | Multiple research techniques | Ethical and safety compliance | Biochemical and pathology labs | Using patient data for diagnosis | | Working Independently | Research & Thinking Critically | Digital Confidence | Adaptability | Resilience | Professional Outlook | Effective Communication | Ethics, Diversity, Sustainability | Enterprise and Entrepreneurship |
| BIO6045 Research Project | | | | | | | | | | | | | | | | | | | | | | |
| BIO6015 Bioentrepreneurship | | | | | | | | | | | | | | | | | | | | | | |
| BIO6013 Chemical & Cellular Pathology | | | | | | | | | | | | | | | | | | | | | | |
| BIO6023 Integrated Pathobiology | | | | | | | | | | | | | | | | | | | | | | |

8. Entry requirements

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| <p>Do the University's standard entry requirements apply (as outlined within the University's Admissions Policy)?</p> | <p>No</p> |
| <p>Detail of any deviation from and/or addition to the University's standard entry requirements (if applicable)</p> | <p>UCAS tariff 112-120</p> <p>GCSE English Language, Maths and Science at grade requirements C or 4 or higher</p> <p>Plus, one of:</p> <p>A Level in Biology or Chemistry at grade B or higher.</p> <p>BTEC Extended Diploma in Applied Science, Diploma, Subsidiary Diploma or Extended Certificate in Applied Science accepted in combination with other qualifications.</p> <p>Access course either in a science subject or a wider health related subject if it includes a minimum of 12 credits at Distinction grade in Biology or Chemistry.</p> <p>International Baccalaureate (IB) – standard tariff but with a minimum of H6 in Biology or Chemistry.</p> |

9. Progression, classification and award requirements

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|---|
| <p>Details of requirements for student progression between levels and receipt of the award(s) (A certain level of attainment which <u>must</u> be achieved in a specific module; any modules exempted from condonement, any deviation from the standard institutional stipulations for award classification, e.g. exclusion of Level 4 module marks from Foundation Degree classification)</p> |
| <p>The Institute of Biomedical Science (IBMS) professional body requires students to achieve a pass mark in all assessment components for modules that cover the clinical laboratory sciences subject areas, which includes all core modules at Levels 4, 5 and 6 of the course. Condonement/compensation will not be permitted for any module, that contributes significantly to the benchmark statement and have learning outcomes that students achieve that cannot be evidenced elsewhere for the accreditation of the degree.</p> <p>Certificate of Higher Education in Biomedical Science requires passes in all 120 credits of Level 4 modules</p> <p>Progression from Level 4 to Level 5 requires passes in all 120 credits of Level 4 modules at 40% or above in all components of each module.</p> <p>Diploma of Higher Education in Biomedical Science requires passes in all 120 credits of Level 5 modules.</p> <p>Progression from Level 5 to Level 6 requires passes in all 120 credits of Level 5 modules at 40% or above in all components of each module.</p> <p>Award of the BSc (Hons) Biomedical Science requires passes in all 120 credits of Level 6 modules at 40% or above in all components of each module.</p> |

Award of the Ordinary Degree – BSc Biomedical Science requires passes in 60 credits of Level 6 modules.

The following regulations apply, together with the General Academic Regulations (delete those not relevant):

- Programme Regulations for Taught Undergraduate Degrees

10. Prerequisites

Details of modules students must study and achieve credit for before enrolling on a module at a higher level, or attaining their final programme award

N/A

11. Additional support needs

Arrangements made to accommodate students with additional support needs and any unavoidable restrictions on their participation in the programme/scheme

Students with disabilities or other support needs are welcome and are expected to be able to participate fully in this programme. Arrangements will be made, via the normal University support systems, to accommodate students with additional support needs wherever possible, with reasonable adjustments made to accommodate individual needs.