

Programme Specification

ASC-BI-2024: Applied Science (Biotechnology)

LU Certificate of Higher Education awarded by Lancaster University (FHEQ Level 4)

LU Foundation Degree in Science awarded by Lancaster University (FHEQ Level 5)

LU Bachelor of Science with Honours (Top-up) awarded by Lancaster University (FHEQ Level 6)

Programme Status: Approved | Version: 1

Introduction

This programme specification provides a summary of the main features of the Applied Science (Biotechnology) programme and includes the learning outcomes that you as a student are expected to have achieved on successful completion of the programme.

Further detailed information related to this programme and the College can be found in the following resources:

- Programme Handbook
- B&FC Admissions Policy
- Work based and placement learning handbook (for foundation degrees)
- Student guide to assessment and feedback

When undertaken as part of a Degree Apprenticeship additional information is available in the following resources:

- The Programme Delivery Plan
- The End Point Assessment Guide
- B&FC Mentor Guide
- B&FC Apprenticeship Strategy

Key Programme Information

Programme Code	ASC-BI-2024
Programme Title	Applied Science (Biotechnology)
Teaching Institution	Blackpool and The Fylde College
Professional, Statutory and Regulatory Body (PSRB) Accreditation	None
UCAS Code	TBC
Language of Study	English
Version	1
Approval Status	Draft
Approval Date	Not yet approved
JACS Code	Other: Other
Programme Leader	Linda Martin

Programme Awards

Award	Award Type	Level	Awarding Body
LU Certificate of Higher Education	Level 4 Target Award (120 credits)	Level 4	Lancaster University
LU Foundation Degree in Science	Foundation Degree (240 credits)	Level 5	Lancaster University
LU Bachelor of Science with Honours (Top-up)	Honours Top-up Degree (120 credits)	Level 6	Lancaster University

Programme Overview

Biotechnology is one of the most innovative sciences. Biotechnologists study the chemistry and genetics of cells and organisms to discover products and processes which are useful to society and to make headway in the reduction of petrochemical use in industry. As a graduate from this programme you could make contributions in areas like medicine and pharmaceuticals, the environment, agriculture and the chemical industry. The FdSc and BSc Applied Science

(Biotechnology) has been designed with local employers to prepare you for entry into the scientific workplace in a range of roles including technician scientist and laboratory scientist. By studying this qualification, you will practice skills applicable to laboratory-based job roles with local, national, and international context. This will allow you to make an impact in a variety of fields of your choice in the future. Knowledge, skills, and behaviours will be developed to ensure that you become highly employable within the industry or allow you to continue your education in masters level study upon qualification.

Admission Criteria

- 5 GCSEs at grade C/4 or above, including English, maths and science
- Relevant Level 3 qualification in science, providing 80 UCAS points as a minimum which could include Access to HE Science, BTEC Applied Science, BTEC Animal Management, T levels, A levels
- Other relevant or prior experience may also be considered as an alternative following information and guidance from expert tutors

Career Options and Progression Opportunities

Successful completion of this programme makes you eligible to work in a wide range of careers in the science industry, including those listed below:

Laboratory Technician: Perform laboratory tests, experiments, and analyses in various biotechnology fields, ensuring accurate and reliable results.

Pharmaceutical Researcher: Contribute to the development of new drugs and therapies, testing their effectiveness and safety.

Microbiologist: Study microorganisms such as bacteria, viruses, and fungi to better understand their roles in various environments and applications.

Bioinformatics Specialist: Analyse and interpret biological data using computational techniques, contributing to fields like genomics and personalized medicine.

Environmental Scientist: Investigate the impact of human activities on ecosystems and recommend strategies for conservation and sustainability.

Quality Control Analyst: Ensure the quality and safety of products, particularly in industries such as food, pharmaceuticals, and cosmetics.

Research Assistant: Assist researchers in conducting experiments, collecting data, and analysing results in academic, corporate, or government settings.

Forensic Scientist: Apply scientific techniques to analyse evidence in criminal investigations, helping to solve crimes and bring justice.

Biotechnologist: Apply biological principles to develop products and technologies that benefit industries such as healthcare, agriculture, and energy.

Programme Aims

** Certificate of HE (Level 4)

-Aim 1 Develop skills, knowledge and behaviours in applied science

-Aim 2 Provide an alternative route into HE for those who wish to pursue education in applied science relevant to the level of study, which serves as a foundation for further study and/or the workplace

-Aim 3 Encourage a self-reflective approach to practice, professional development, research, analysis and presentation

-Aim 4 Develop a range of transferable skills which can be applied in employment in other sectors and in further study

** FdSc Applied Science (Level 5)

-Aim 1 Provide graduates with the opportunity to develop the knowledge, skills and behaviours required for a career in the applied sciences and an understanding of the contribution these can make to a sustainable future

-Aim 2 Develop graduates with knowledge and critical understanding of methods of enquiry and the practical skills used in applied sciences and the ability to apply these in an industry related context

-Aim 3 Offer the opportunity to evaluate data from a range of sources and be able to propose alternative methodologies or solutions in complex and unpredictable circumstances

-Aim 4 Practice graduate skills such as communication, group working, project planning and project management

-Aim 5 Provide an insight into the multidisciplinary nature of the applied sciences and to encourage a professional, independent approach to challenges

** BSc Applied Sciences (Level 6)

-Aim 1 Encourage critical engagement with the published academic literature in the field of applied sciences with a view to producing original and creative ideas including the justification of approaches taken

-Aim 2 Develop an awareness of limitations in personal skills and attributes becoming independent in identifying appropriate steps for improvement which will contribute to lifelong learning

-Aim 3 Encourage the development of criticality, contestability and uncertainty, in tandem with practical technical skills which enhance employability

-Aim 4 Develop awareness of the complexity and rapidly evolving nature of the applied sciences

Programme Learning Outcomes

Level 4

Upon successful completion of this level, students will be able to:

1. Describe and explain the key scientific principles of applied sciences using appropriate terminology, accessing suitable academic texts
2. Perform a range of laboratory practical and field work techniques to a high degree of accuracy
3. Collect, manipulate and analyse datasets to present findings from investigations
4. Communicate complex information to a range of audiences using suitable media
5. Reflect on personal and professional development
6. Consider regulation in the science sector

Level 5

Upon successful completion of this level, students will be able to:

7. Describe, explain and discuss the key scientific principles of applied sciences in detail and with accuracy, using appropriate terminology
8. Review and apply scientific literature to extend knowledge in the applied sciences
9. Select appropriate theoretical concepts and practical, computational and fieldwork techniques to solve problems and identify the most appropriate solution, recognising the limitations of these methods
10. Apply a range of analytical techniques with due regard to accuracy, precision and traceability, using safe working practices and appropriate waste reduction and safe disposal practices
11. Generate primary data and use suitable mathematical concepts and data analysis to interpret and present primary, secondary and simulated data sets
12. Communicate complex information in the detail required by the audience using a range of suitable media
13. Reflect on and evaluate personal performance and identify realistic improvements to develop skills and behaviours

Level 6

Upon successful completion of this level, students will be able to:

14. Critically evaluate scientific data, methodologies, analyses and outcomes
15. Construct coherent arguments using information from a variety of sources and produce work which has a creative, independent and individual element
16. Communicate complex information about applied sciences to a range of intended audiences in a range of media
17. Critically analyse scientific data from both primary and secondary sources
18. Reflect on personal and professional development and explore opportunities for career progression and/ or further study
19. Critically evaluate regulation in the science sector, including health and safety, ethics and legislation

Programme Structure

Module	Level	Credits	%	Category	Description	Length/Word Count	Grading Method
Stage 1							
ASC401: Scientific Research Skills (Mandatory)	4	20	60%	Coursework: Essay	n/a	2000	Letter Grade
			40%	Practical: Presentation	n/a	10	Letter Grade
ASC402 : Essential Bioscience (Mandatory)	4	20	100%	Coursework: Portfolio / e-Portfolio	n/a	3000	Percentage Grade
ASC403 : Essential Chemistry (Mandatory)	4	20	60%	Coursework: Report	n/a	2500	Letter Grade
			40%	Practical: Presentation	n/a	10	Letter Grade
ASC404: Laboratory and Field Skills (Mandatory)	4	20	100%	Practical: Practical Skills Assessment	Observation record.	240	Percentage Grade
ASC405: Project (Mandatory)	4	20	20%	Coursework: Evaluative/ Reflective Report	n/a	800	Letter Grade
			80%	Practical: Presentation	n/a	20	Letter Grade
ASC406: Regulation in the Science Sector (Mandatory)	4	20	100%	Coursework: Case Study	Industry analysis	2000	Letter Grade
Stage 2							
ASC501: Specialist Scientific Techniques (Mandatory)	5	20	70%	Coursework: Portfolio / e-Portfolio	n/a	2500	Percentage Grade
			30%	Practical: Film	Video	10	Letter Grade
ASC503 : Microbiology Techniques (Mandatory)	5	20	60%	Practical: Practical Skills Assessment	Observation record	0	Percentage Grade
			40%	Practical: Other	Lab book and professional discussion	30	Percentage Grade
ASC505: Analysis of Scientific Data (Mandatory)	5	20	100%	Coursework: Portfolio / e-Portfolio	n/a	2500	Percentage Grade
ASC507 : Molecular Techniques (Mandatory)	5	20	40%	Practical: Other	Professional discussion	30	Percentage Grade
			60%	Practical: Practical Skills Assessment	Observation record	240	Percentage Grade
ASC509 : Advanced Project (Mandatory)	5	20	30%	Coursework: Plan	Project Proposal	1000	Letter Grade
			70%	Coursework: Report	Individual Report	2500	Percentage Grade
ASC510 : Work Based Learning (Mandatory)	5	20	50%	Practical: Presentation	Industry Experience	15	Letter Grade
			50%	Coursework: Portfolio / e-Portfolio	Professional Portfolio	1800	Percentage Grade

Stage 3							
ASC601: Project Management (Mandatory)	6	20	25%	Coursework: Plan	Proposal	1000	Letter Grade
			75%	Coursework: Plan	Project Management Plan	2000	Letter Grade
ASC603: Biotechnology (Mandatory)	6	20	70%	Practical: Practical Skills Assessment	Timed Assessment	240	Percentage Grade
			30%	Practical: Presentation	Conference Style	15	Letter Grade
ASC604: Dissertation (Mandatory)	6	40	80%	Coursework: Report	Scientific Report	8000	Letter Grade
			20%	Practical: Presentation	Conference Style	15	Letter Grade
ASC605: Laboratory Management (Mandatory)	6	20	70%	Coursework: Case Study	n/a	2500	Letter Grade
			30%	Practical: Other	Professional Discussion	20	Letter Grade
ASC607 : Managing Personal and Professional Development (Mandatory)	6	20	100%	Coursework: Portfolio / e-Portfolio	Career development	3000	Percentage Grade

Study Workload

Each module of the programme requires 200 hours of study which is split between your in-class and online sessions. You will be expected to complete 6 hours of online learning weekly which you can do in your own time. You will receive feedback on this work before attending the face-to-face sessions. You will also have time available for wider reading and for completion of assignments. You will be provided with an assessment schedule at the start of the academic year which you can use to plan your study time in each term. Progress tutorial sessions will also be included to support you in your organisation and time management helping you meet all deadlines.

Programme Delivery: Learning and Teaching

You will learn both online and in face-to-face sessions. The online work will be provided for you on a weekly basis through our virtual learning environment Canvas. This component will represent 6 hours of study per week and will include lectures, quizzes and research tasks. It is a requirement that you complete this before attending face-to-face sessions and you will get feedback on this from your tutor beforehand. The face-to-face sessions will be active sessions with class discussions, problem solving, practical and fieldwork tasks. This work will test your online learning and provide opportunities for you to develop the knowledge, skills and attributes employers are looking for.

We work closely with local employers to ensure that the activities you do are relevant to a range of science sectors which will help you build your understanding of industry practices.

Your teachers are experts in their area and keep up to date with developments in industry. They also work closely with local employers to design activities and problem sets.

Programme Delivery: Assessment

Assessment at B&FC includes formative assessment which you will receive on your online learning, as well as in class work, practical and field work. This type of assessment helps you to identify areas where you can improve and where you are doing well and will help prepare you for the summative assessment. There are no traditional examinations on this programme. Instead, there is a mixture of essays, scientific reports, case studies, presentations and timed practical assessments. You will receive detailed feedback on each assessment which will help you to improve on the next one.

Programme Delivery: Work Based and Placement Learning

During the FdSc there is a Work Based Learning module which will develop your employability further. We would encourage you to take up a placement with an employer or to undertake a work-based project, of 30 hours duration. This experience will allow you to develop your professionalism and to gain an insight into how the science sector works.

Programme Delivery: Graduate Skill Development

At B&FC we don't just teach the theories behind the subject area we also help you to develop the skills which you will need for the future. We see these as follows:

A commitment to lifelong learning and career development By engaging in the independent online learning in the programme you will develop your research skills which will support you in your future career. In tutorial you will develop your career goals through engagement with local employers and our Careers Team.

Collaborative teamwork and leadership skills Throughout the programme you will be engaged with your peers in problem solving in small groups and will be assessed on this in Project module at level 4 and Advanced Project at level 5, receiving feedback on your performance

Personal and intellectual autonomy In the online learning you will be encouraged to research topics of interest to you, related to the subject area, bringing this to face to face sessions for discussion

Ethical, social and professional understanding These traits will be encouraged in all teaching and learning and will be assessed in Regulation in the Science Sector at level 4 and further developed in Work Based Learning at level 5 and Managing Personal and Professional Development at level 6

Communication, information and digital literacies The first module on the programme is Scientific Research Skills which will support you in developing these skills for application in the rest of the programme. You will develop your written and oral communication through discussions and presentations to a range of audiences

Global citizenship The role of science in society will be reviewed in Scientific Research Skills module and explored in others such as Essential Bioscience and Essential Chemistry

Research, scholarship and enquiry skills Project module at level 4, Advanced Project at level 5 and Dissertation at level 6 will provide you with an opportunity to use the skills you have developed in the previous modules to enable you to solve a problem presented to you

Enterprise and entrepreneurial awareness and capabilities In Project module you will consider the costs and benefits of alternative strategies to solve the problem presented to you. In Work Based Learning you will become aware of the aims of business in the science sector and in Project Management will learn the importance of appropriate planning to achieve goals

The ability to solve complex and unforeseen problems with creativity and imagination In each module of the programme you will be presented with problems to solve in small groups, using your creativity and imagination as well as your knowledge and skills

Study Costs: Equipment Requirements

All students should have the basic stationary required for study. You may also wish to buy a scientific calculator and laptop. Laptops can be provided by the Learning Resource Centre (LRC) for class use. B&FC provides all necessary health and safety equipment such as labcoats and safety glasses, but this is something some students prefer to buy for their own use. All reading lists and recommended texts are held in the LRC. There may be limits on the numbers of each text available as they can be expensive. If you are thinking about buying a text, speak to your module tutor for suggestions. It is not necessary to buy all texts on the reading list.

Study Costs: Additional Costs

There may be opportunities for trips and visits during the programme. If these are essential to the programme they will be paid for by B&FC. However, if they are enrichment activities, there may be a charge, although we would aim to keep costs to a minimum

Related Courses

Science is in the Curriculum Area of Health, Education and Science. The Applied Science FdSc and BSc degrees have three pathways. After completing the Certificate in HE Applied Science at level 4 you will choose which pathway to follow. The related pathways are Analytical Chemistry and Environmental Science