



# Programme Specification

## ASC-CH-2024: Applied Science (Analytical Chemistry)

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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: Draft | Version: 1

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## Introduction

This programme specification provides a summary of the main features of the Applied Science (Analytical Chemistry) 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

<b>Programme Code</b>	ASC-CH-2024
<b>Programme Title</b>	Applied Science (Analytical Chemistry)
<b>Teaching Institution</b>	Blackpool and The Fylde College
<b>Professional, Statutory and Regulatory Body (PSRB) Accreditation</b>	None
<b>UCAS Code</b>	TBC
<b>Language of Study</b>	English
<b>Version</b>	1
<b>Approval Status</b>	Draft
<b>Approval Date</b>	Not yet approved
<b>JACS Code</b>	F100: Chemistry (F100)
<b>Programme Leader</b>	Linda Martin

## Programme Awards

<b>Award</b>	<b>Award Type</b>	<b>Level</b>	<b>Awarding Body</b>
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

Analytical chemistry techniques are critical to the processes involved in diverse industries and fields including clinical sciences, biotechnological industries, environmental agencies, and chemical and polymer manufacturing. 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 tutor

### Career Options and Progression Opportunities

The AS (Analytical Chemistry) programme has been designed so you can gain a qualification at Level 4, 5 and 6 so

There are a range of possible careers you could enter including:

**Chemical Analyst:** Perform detailed chemical analysis and quality control testing in industries such as pharmaceuticals, food and beverages, and manufacturing.

**Research Scientist:** Work in laboratories or research institutions, conducting experiments to develop new materials, processes, and chemical innovations.

**Process Chemist:** Optimise chemical manufacturing processes, ensuring efficiency, safety, and compliance with environmental regulations.

**Environmental Chemist:** Analyse the impact of chemicals on the environment, assess pollution levels, and contribute to sustainability efforts.

**Materials Scientist:** Study and design new materials with specific properties for applications ranging from electronics to construction.

**Pharmaceutical Researcher:** Contribute to the development of new drugs and medical treatments by researching and testing chemical compounds.

**Quality Control Specialist:** Ensure the consistency and quality of products through rigorous testing and analysis in various industries.

**Analytical Chemist:** Utilise advanced analytical techniques to identify and quantify chemical substances in complex samples.

**Nanotechnologist:** Explore the world of nanomaterials and their potential applications in fields like electronics, medicine, 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
<b>Stage 1</b>							
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
<b>Stage 2</b>							
ASC501: Specialist Scientific Techniques (Mandatory)	5	20	70%	Coursework: Portfolio / e-Portfolio	n/a	2500	Percentage Grade
			30%	Practical: Film	Video	10	Letter Grade
ASC502 : Analytical Chemistry (Mandatory)	5	20	60%	Practical: Timed Assessment	Timed assessment and Observation	240	Percentage Grade
			40%	Practical: Other	Lab Book Review and Professional Discussion.	15	Percentage Grade
ASC505: Analysis of Scientific Data (Mandatory)	5	20	100%	Coursework: Portfolio / e-Portfolio	n/a	2500	Percentage Grade
ASC506 : Materials Chemistry (Mandatory)	5	20	70%	Practical: Timed Assessment	Timed assessment and observation	240	Percentage Grade
			30%	Practical: Other	Lab book and Professional Discussion	15	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
ASC602: Materials Life Cycle (Mandatory)	6	20	70%	Practical: Timed Assessment	Timed assessment	240	Percentage Grade
			30%	Practical: Presentation	Poster/presentation	15	Percentage 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 this programme includes 200hrs of study. This is broken down between lectures, investigations, seminars and presentations, as well as including your own study time as a minimum number of hours expected. You may wish to undertake wider reading to develop your understanding of the subjects further.

### Programme Delivery: Learning and Teaching

#### Blended Learning Approach:

Benefit from a balanced blend of in-person and online learning experiences. Our online resources, including lecture materials, discussion forums, and supplementary materials, provide flexibility and support for your learning journey.

#### Industry Engagement:

Connect with industry professionals through guest lectures, workshops, and site visits. You'll have the opportunity to learn directly from experts, understand current industry practices, and build a network that extends beyond the classroom.

#### Personalised Support:

Receive individualised support from academic advisors who are dedicated to your success. Whether you need guidance on course selection, academic progress, or career planning, our advisors are here to assist you.

#### Critical Thinking and Problem-Solving:

Develop your critical thinking skills by analysing complex environmental issues from multiple angles. Engage in problem-solving exercises that mirror real-world scenarios, preparing you to tackle challenges in your future career.

### Communication and Presentation Skills:

Hone your ability to communicate complex scientific concepts effectively. Through presentations, reports, and group projects, you'll gain skills that are essential for sharing your insights with diverse audiences.

### Career Readiness:

From day one, our program is designed to prepare you for a successful career in environmental science. You'll develop not only subject-specific knowledge but also essential skills that employers seek, such as teamwork, adaptability, and a commitment to sustainability.

## Programme Delivery: Assessment

Assessment across this programme is carried out via a range of practical assessments, presentations, posters, reports and discussions.

## Programme Delivery: Work Based and Placement Learning

### Live Briefs and Real-World Case Studies:

We recognize the importance of practical experiences in developing valuable skills. Throughout the programme, you will engage with live briefs and real-world case studies that simulate actual industry scenarios. These exercises challenge you to apply your theoretical knowledge to solve authentic challenges, enhancing your problem-solving abilities and critical thinking skills.

### Work Placements:

To further solidify your understanding and gain hands-on experience, our programme includes 30 hours of mandatory work placement. These placements provide you with invaluable exposure to professional environments, allowing you to witness the day-to-day operations of your chosen field. This is a crucial element of your journey towards becoming a skilled professional.

## Programme Delivery: Graduate Skill Development

Our Applied Science Degree Programme is designed to nurture well-rounded professionals who possess not only technical prowess but also a diverse set of graduate attributes that empower them to excel in a rapidly evolving world. Throughout your journey, we are dedicated to fostering the development of the following key graduate skills:

- A commitment to lifelong learning and career development
- Collaborative teamwork and leadership skills
- Personal and intellectual autonomy
- Ethical, social and professional understanding
- Communication, information and digital literacies
- Global citizenship
- Research, scholarship and enquiry skills
- Enterprise and entrepreneurial awareness and capabilities
- The ability to solve complex and unforeseen problems with creativity and imagination

## Study Costs: Equipment Requirements

You may wish to consider purchasing the following equipment as part of this programme:



- personal computer to access the virtual learning environment and resources
- personal lab coat, although you will have access to one as part of your programme
- all PPE will be provided throughout the programme
- standard stationary
- all recommended texts/reading are available in our LRC, although you may wish to purchase your own

### **Study Costs: Additional Costs**

All required visits as part of the programme are included

The programme is enhanced by visits to local employers and institutions, which may incur a small fee

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