BSC (HONS) APPLIED CHEMISTRY (TOP-UP)

Institute of Science and Environment

Academic Level:	6	**Credits:**	120
UCAS Code:	F113		
Awarding Body:	University of Cumbria		
Delivery Site:	University of Cumbria Fusehill Street campus Approved Gateway sites and partner locations		
Programme Length:	Part time: 2 years Maximum registration period: 4 years		
Mode of Delivery:	Face to Face		
Pattern of Delivery:	Part-Time only		
	Total weeks of study:	60 weeks	
	Delivery pattern:	4 x 15-week semesters, comprised of 12 x teaching weeks, 2 x assessment weeks and 1 x enhancement week	
	Standard semester dates:	*Yes*	
Programme Webpage:	http://www.cumbria.ac.uk/study/courses/undergraduate/applied-chemistry-top-up/		

Entry Criteria
The University's standard criteria for admissions apply. Please refer to the Applicant Information pages of the University website for more information. For RPL, please refer to the University website. Detailed criteria for admission to this programme can be found on the programme webpage: http://www.cumbria.ac.uk/study/courses/undergraduate/applied-chemistry-top-up/ Applicants should have a chemistry or applied chemistry foundation degree from a recognised Higher Education institution in the UK, or its equivalent. Applicants from courses based at institutions other than the University of Cumbria will be assessed on their suitability depending upon the modules they have studied.

Alternatively, applicants should have completed an HND in chemistry or applied chemistry; other HNDs will be considered and assessed on their suitability depending upon the modules they have studied.

Applicants with non-standard entry requirements must have a post-A-level qualification in chemistry or in a subject containing a high proportion of chemistry and GCSE's at a minimum of Grade C or equivalent Level 2 qualifications to include Maths, English and Science.

PROGRAMME AIMS AND OUTCOMES

Programme Aims

By the end of this programme, learners will be able to:

1. Demonstrate a systematic understanding and detailed knowledge of key chemical concepts.
2. Demonstrate an inter-disciplinary approach to science and technology and an appreciation of applied chemistry in industrial, academic, economic and social contexts.
3. Critically evaluate ideas and techniques at the forefront of applied chemistry to make judgements, frame appropriate questions and conduct independent research.
4. Apply standard methodology to solve chemistry problems in work environments.
5. Integrate theoretical knowledge of chemistry with practical and transferable skills to successfully progress in employment or postgraduate study.

Programme Outcomes – Knowledge and Understanding

After 60 credits of study (BScTop-Up) you will be able to demonstrate:

K1 Understanding of safe working practice, health and safety environment in terms of managing chemical toxicity, chemical stability and chemical reactivity, through knowledge-based risk assessments.

K2 Comprehension and critical evaluation of the application of materials and nanomaterials in specific industries.

K3 A critical appreciation of the complex and advanced analytical techniques which affect the structure and identification of various materials and nanostructured materials.

K4 Knowledge in the methods of acquiring, interpreting and analysing information with a critical understanding of the appropriate contexts for their use through the study of texts, papers, reports and data sets; and their application to research projects.

K5 Knowledge of key practices and theories relevant to specific topics in applied chemistry

K6 A critical appreciation of the complex relationships which affect the structure, composition and behaviour of materials.

After 120 credits of study (BSc (Hons) Top-Up) you will be able to demonstrate:

K7 Detailed knowledge and critical understanding of an area of applied chemistry that forms the basis of an empirical dissertation.

Programme Outcomes – Skills and other Attributes

After 60 credits of study (BSc Top-Up), you will be able to demonstrate:

S1. An ability to conduct experiments and chemical reactions safely in line with appropriate risk assessments.

S2. Proficient use of advanced chemical instrumentation in conducting laboratory procedures

S3. The ability to plan and carry out experimental procedures to solve qualitative and quantitative problems.

S4. Competence in relation to applied chemistry in a workplace.

S5. Team working, performing different roles, interacting positively within groups and teams, and applying a variety of strategies.

S6. Comprehensive skills in the monitoring and assessment by observation and measurement of chemical properties, processes, and the systematic and reliable recording and documentation.

S7. Effective communication skills, covering scientific writing, oral communication, and presenting material and arguments to a variety of audiences.

S8. Professional employment standards of common conventions and standards in scientific writing, data presentation, and referencing literature.

After 120 credits of study (BSc (Hons) Top-Up) you will be able to demonstrate:

S9. Formulation of researchable problems within applied chemistry, critically evaluating evidence from a range of sources and drawing appropriate conclusions.

S10. The capability to challenge existing knowledge and construct evidence-based arguments.

PROGRAMME FEATURES

Programme Overview

Chemistry is a broad field of study concerned with the composition of matter, the investigation of its properties and reactions, and the use of such reactions to form new substances. Applied Chemistry is a multi-disciplinary subject which interacts with all life, natural sciences and engineering. The applied chemistry programme has been designed with employers to develop knowledge and understanding of core chemical concepts and their application to industrial processes, whilst recognising the important part chemistry must play in the *UN's Sustainable Development Goals*. It focuses on practical applications, problem-solving and graduate attributes to support career progression.

The BSc (Hons) programme has been designed with consideration of the QAA Benchmark statements for Chemistry and the Royal Society of Chemistry academic standards. The aim is to develop a systematic understanding and coherent knowledge of different branches of chemistry to meet industrial demands.

The programme is taught by academic staff with extensive teaching, research, and professional expertise. They bring together a wealth of knowledge and experience and are committed to providing high-quality guidance and support. Furthermore, a substantial amount of laboratory-based experiential learning is provided alongside small group lectures and tutorials, as well as some larger group sessions. Collectively, these will allow you to broaden your skill set, develop attributes such as being adaptable, collaborative and critically curious, and enhance your effectiveness in the workplace.

In seeking to address the higher-level analytical and subject-specific needs of regional employers, the curriculum reflects applied chemistry in industrial, environmental and research contexts, ensuring real-world relevance. In seeking also to help to widen access to higher education for those already in employment, the part-time delivery pattern allows you to 'earn and learn' and provides further opportunity to relate your learning to the workplace. These programme design features underpin success, and when coupled with an ethos of active learning, a strong commitment to authentic assessment, digitally supported learning environments and robust pastoral and academic support mechanisms, are influential in achieving the strong retention, progression and achievement outcomes shown on the programme.

Learning and Teaching

Teaching

We aim to deliver an accessible, inclusive and quality assured programme that provides academic inspiration and intellectual challenge, with emphasis on the development of professional and transferable skills, so that you can optimise your potential. Our approach to learning and teaching recognises each student as an individual and, as a student at the University of Cumbria, you will be part of an inclusive and diverse learning community. Equally important are the opportunities to

interact with others in an interdisciplinary, collaborative and active learning environment, so you can explore complex issues, positively challenge assumptions and reflect on ways of thinking.

Our teaching approach and ethos have been developed in line with the University's curriculum design framework. We recognise that you have an active role to play in your learning and engage you with developing knowledge and skills in partnership with the programme team. Planned to enable you to attain the stated programme aims, teaching and learning are scaffolded through a modular approach to support your progressive development.

Campus-based learning is central to the learning experience, with attendance across the range of lectures/seminars/practical sessions/group work projects seen as essential. This is enhanced and given flexibility by use of an online virtual learning environment so that information and activities can be accessed at your convenience. Study resources at other campuses and learning gateways of the University are also available for your use.

Typically, you will have around 36 contact hours per module. Most modules are semesterised, which offers benefits in terms of balanced workloads throughout the academic year. The Dissertation module, however, is delivered over an extended period to provide you with opportunities to develop and conduct your research.

A variety of learning and teaching methods are used to reflect the variety of individual preferences that inevitably exist within a group. Methods are designed to support the move to autonomy and independent learning, and include:

- **Lectures** will provide you with the knowledge of key chemical concepts.
- **Practical classes** will give you the hands-on practical skills so that you can assess and mitigate risks, apply theoretical knowledge to practical applications, and work safely and competently in a laboratory.
- **Workshops** are active sessions, where you will work in groups to discuss key concepts and learn about techniques required in applied chemistry.
- **Seminars** will provide opportunities for discussion, allowing you to explore complex issues from different perspectives and critically reflect on your own experiences.
- **Problem-based learning** will provide opportunities for teamwork and for you to apply knowledge in real-world contexts.
- **Tutor-led recorded sessions** will cover concepts that are central to the study of **Applied Chemistry**. Available within the virtual learning environment, they will give you flexibility in terms of when and where you access the material, facilitate deeper exploration of the concepts within face-to-face sessions and allow you to return to the recordings at a later stage.
- **Research** exposure will take multiple forms. You will be given examples of current research in applied chemistry, where you will learn to critique the content, processes employed, and data generated. You will research into topics of interest related to the different modules and critique ideas and techniques at the forefront of applied chemistry. You will also conduct an independent research project, using an appropriate methodological framework, giving due

consideration to H&S and ethical challenges, and situating the research in the appropriate field of literature to demonstrate a systematic understanding of applied chemistry.

- **Directed and independent study involving digital resources on Blackboard (virtual learning environment), textbooks and other self-study materials –** It is highly important that you engage with the additional resources and materials available to you. Campus based sessions will give you the foundations required of the subject however, to embed deeper learning and ensure currency you will be required to undertake further study.

Independent Learning

When not attending scheduled learning activities you will be expected to continue learning independently through self-study.

Digital Capabilities

Key digital tools and technologies embedded within the programme include:

- Blackboard as the Virtual Learning Environment (VLE), supporting access to module materials, online learning activities, assessment submission, feedback, collaborative learning, and academic communication.
- Turnitin to support electronic submission, originality checking, academic writing development, and formative feedback processes.
- Microsoft Office (Excel, PowerPoint, MS Word) for quantitative analysis, graphing, statistical calculations, laboratory data processing and reporting.
- R for statistical computing, data visualisation and graphics
- RefWorks for collecting and managing sources.
- Digital laboratory instrumentation and associated analytical software to support the acquisition, monitoring, processing, and interpretation of experimental and analytical chemistry data.

Through engagement with these technologies, you will develop digital fluency, competency in scientific data-handling, computational problem-solving skills, and confidence in the use of digital tools relevant to employment and further study in applied chemistry and associated scientific sectors.

Teaching Staff

Our highly experienced team draw on their professional backgrounds and expertise to inform teaching and learning. Experience in areas such as the characterisation, treatment and disposal of problematic wastes within the nuclear industry, medicinal chemistry and statistical consultancy ensures the curriculum is grounded in professional practice. Input from guest speakers provides a further bridge between academic theory and practical application. Using our research to inform the curriculum provides currency and opportunities for you to have critical encounters with cutting edge knowledge. Our research interests cover areas such as organic dyes, medicinal chemistry and industrial antimicrobials.

Assessment

Subject Benchmark Statements, published by the Quality Assurance Agency for Higher Education (QAA), describe the academic standards expected of graduates in specific subject areas. They show what graduates might reasonably be expected to know, do and understand at the end of their studies. Drawing on the benchmark statement for chemistry, the approach to assessment is centred on authenticity. Forms of assessment reflect what chemists might typically do in their professional roles, creating opportunities for you to develop contemporary knowledge and skills needed in an applied context. Within a balanced scheme, assessment methods include:

- unseen examinations
- short note class tests.
- laboratory reports
- computer-based assessments
- problem-solving exercises (both of a practical and written format)
- critical analysis of case studies
- oral, audio-visual and poster presentations
- dissertations
- peer and self-assessment
- group work

Within this authentic approach, both formative and summative assessment is used. Formative assessment helps you identify your strengths and weaknesses to improve your learning. It is grounded in a developmental approach to enhance your skills and gain confidence. Summative assessment is designed to enable you to engage deeply with the subject and is used to evaluate your achievement of module learning outcomes. Care is taken to ensure that assessments are accessible. Where individuals may be disadvantaged by an assessment method, reasonable adjustments are considered, while ensuring fairness across the full cohort and adherence to professional standards.

With a real-world focus, the assessments will examine your ability to integrate theory and practice, and to think critically in relation to empirical research. Examining also your subject specific, professional, and transferable skills, successful completion of the assessments will mean you are well placed to affect change within industrial, academic, economic and social contexts.

Feedback

A variety of informal and formal feedback mechanisms are included within the learning design to support your progression and professional development. Informal feedback may be delivered on an individual or group basis, through synchronous or recorded asynchronous mechanisms, and may include, for example, knowledge checks, verbal, audio, written comments or summaries, peer-review and worked examples. In line with UoC policy, formal feedback on summative assessments will be provided within 20 working days. It will be based on grading criteria linked to the module learning outcomes and aligned to the UoC grade descriptors, which differentiate between the levels of study. Taking a consistent approach across the programme, the feedback will demonstrate how the grade was derived in relation to performance against the grading criteria and identify ways for you to improve in future.

Graduate Prospects

The real-world focus will prepare you to deliver impact in the workplace.

Embracing active and collaborative learning, the programme provides opportunities for you to develop comprehensive knowledge and understanding of chemical concepts, ideas and techniques. You will gain the practical skills to work safely and accurately in a laboratory, as well as the planning and investigative skills that draw on the existing literature to develop new insights and propose avenues for further exploration.

Professional skills will be augmented by the development of wider skills and expertise to enable you to surmount the economic, social and political challenges of the future. Digitally capable, and with attributes such as critical, creative, analytical and collaborative, you will be well positioned to navigate the uncertain and act as a leader in the workplace.

Studying part-time, most graduates from the programme integrate their knowledge, skills and expertise into their workplace roles, allowing them to make more effective contributions towards their organisational purpose and serving as a strong platform for future advancement. Chemistry graduates are also in demand across diverse sectors, including pharmaceuticals, chemical manufacturing, and environmental science. Progression into postgraduate study is possible.

MODULES

Code	Title	Credits	Status
HSOS6022	Exploring Research	20	Compulsory
HSOS6021	Advanced Analytical Applications	20	Compulsory
HSOS6019	Applied Medicinal and Materials Chemistry	20	Compulsory
HSOS6013	Chemistry in the Environment - Industry	20	Compulsory
HSOS6106	Dissertation	40	Compulsory
Students exiting with 60 credits at level 6 would receive a BSc Applied Chemistry (Ordinary Degree) **Students exiting with 120 credits would receive a BSc (Hons) Applied Chemistry degree**			

Key to Module Statuses	
Core modules	Must be taken and must be successfully passed.
Compulsory modules	Must be taken although it may possible to compensate as a marginal fail (within the limits set out in the Academic Regulations and provided that all core or pass/fail elements of module assessment have been passed).

Timetables

Timetables are normally available at the end of July. Scheduled learning will take place on an identified day to facilitate day-release from employment.

Our Timetabling team work hard to ensure that timetables are available to students as far in advance as possible, however there may be occasional exceptions such as in the case of teaching which falls outside of the usual academic calendar. The UoC academic calendar runs from August to July, so timetabling information for programmes which include teaching sessions in August may not be published until closer to the August delivery.

ADDITIONAL INFORMATION

Student Support

The Student Enquiry Point is a simple way to contact Student Services. Using the Student Enquiry Point tile on the Student Hub you can submit an enquiry to any of the Student Services teams, which includes:

- Careers and Employability
- Chaplaincy for faith and spiritual wellbeing
- Mental Health and Wellbeing
- Digital Skills
- Disability and Specific Learning Difficulty (SpLD)
- International Student Support
- Library
- Money Advice Service
- Safeguarding
- Skills@Cumbria
- Sports and Fitness Facilities
- University Student Accommodation

As a student at the University of Cumbria you automatically become a member of the Students' Union. The Students' Union represents the views and interests of students within the University.

The Students' Union is led by a group of Student Representatives who are elected by students in annual elections. They also support approximately 400 Student Academic Reps within each cohort across the entire University. The Students' Union represent the views of their cohort and work with academic staff to continuously develop and improve the experience for all University of Cumbria students. You can find out more about who represents you at www.ucsu.me.

You can email at any time on studentvoice@cumbria.ac.uk.

Course Costs

Tuition Fees

Course fees can be found at http://www.cumbria.ac.uk/study/courses/undergraduate/applied-chemistry-top-up/

The following course-related costs are included in the fees:

- Access to desktop computers on campus and laptops available in the IT Suite for you to sign out and use free of charge.
- You can install key software and apps free of charge for use on your own devices for the duration of the programme.
- The costs of any UK based visits are included in the fees.

Additional Costs

The following course-related costs are not included in the fees

- Books
- The University library holds copies of core texts (including many eBooks, accessible online) but you may wish to purchase your own copies of textbooks. The cost of these varies greatly depending on edition and condition.
- Stationery and IT
- Stationery for your own personal use (pens, papers and folders, etc.). Whilst you choose how much you need, expect to pay around £40-£50 per year for these.
- Laboratory notebook (£10 - 15).
- Scientific calculator (£10-25)
- Clothing and Equipment
- Lab coat (£10-15)

Exceptions to the Academic Regulations

This programme operates in accordance with the University's Academic Regulations and Academic Procedures and Processes.

External and Internal Benchmarks

The QAA subject benchmark statement to which the programme relates is QAA Subject Benchmark Statement: Chemistry (2022). This is available at: https://www.qaa.ac.uk/docs/qaa/sbs/sbs-chemistry-22.pdf?sfvrsn=46b1dc81_6

Other external reference points included:

- Royal Society of Chemistry
- UN's Sustainable Development Goals

Internal reference points included:

- UoC Learning, Teaching and Assessment Plan
- Curriculum Design Framework
- UoC Academic Regulations and Academic Procedures and Processes

Disclaimer

This programme has been approved (validated) by the University of Cumbria as suitable for a range o delivery modes, delivery patterns, and delivery sites. This level of potential flexibility does not reflect a commitment on behalf of the University to offer the programme by all modes/patterns and at all locations in every academic cycle. The details of the programme offered for a particular intake year will be as detailed on the programme webpage: http://www.cumbria.ac.uk/study/courses/undergraduate/applied-chemistry-top-up/

Date of Programme Specification Production	July 2026
Date Programme Specification was last updated	