

# Student Handbook

BSc(Hons) Chemistry and MChem Chemistry

2016 - 2017

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School of Physical Sciences and Computing



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## Mission and Values

We create positive change in our students, staff, business partners and wider communities, enabling them to develop their full potential by providing excellent higher education, innovation and research.

### Our values:

- The pursuit of excellence in all that we do.
- Equality of opportunity for all, supporting the rights and freedoms of our diverse community.
- The advancement and protection of knowledge, freedom of speech and enquiry.
- Supporting the health, safety and wellbeing of all.

## Student Charter

The Student Charter has been developed by the University and the Students' Union so that students gain the maximum from their UCLan experience. It is a two-way commitment or 'contract' between the University and each individual student. It acts as a means of establishing in black and white what students can expect from the University and the Union in terms of support, and in return what we expect from our students. [Read the full Student Charter](#)

## Supporting Diversity at UCLan

UCLan recognises and values individual difference and has a public duty to promote equality and remove discrimination in relation to race, gender, disability, religion or belief, sexual orientation and age. During your time at UCLan we expect you to be able to

- experience "an integrated community based on mutual respect and tolerance where all staff and students can feel safe, valued and supported."
- contribute to creating a positive environment where discriminatory practices and discrimination no longer happen.

Please review the UCLan [Equality and Diversity Policy](#) for further information.

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# 1. Introduction to the course

## 1.1 Welcome to the course

This is a true Chemistry degree in every sense, however, for purely administrative purposes the course is managed by the School of Physical Sciences and Computing. The course is delivered by a team of chemists who have many years' experience in the delivery of degree level chemistry. The school appreciates the contribution of research to scholarly activity; the chemistry team are some of the most research active staff within the university. They form the nucleus of the Centre for Materials Science. This research centre was awarded a grade 4 in the last HEFCE research assessment exercise and as such is of national importance. This vibrant research culture influences many of the advanced topic and research projects delivered in the final year of the course. In addition many of the team are involved in research that crosses international boundaries and have collaborations overseas and this ensures that there is an excellent exchange of culture in everything we do.

What do you expect from the time you spend studying? Presumably you hope to graduate with a degree and you hope that this will lead to related employment. You expect to get high quality teaching from staff with experience in their own discipline; you expect to gain 'hands-on' experience of a range of equipment and experimental techniques; you expect to receive guidance and support from staff; and you will expect to have the opportunity to take part in a range of social activities and to develop as an individual.

All the staff involved in this course are committed to meeting these expectations. However, in turn there are certain expectations of you. Firstly, it is important that you develop the capacity for independent learning. The overall teaching strategy within the School is one of 'Dependence to Independence', and therefore this will be expected increasingly as you progress through your course. Secondly, you are expected to develop, or improve, key skills, such as **numeracy, writing, self-organisation, working in a team** etc. Employers will certainly be looking for evidence of such skills! Finally, you are expected to take a responsible approach and an active role in your study, following the School and University policies and regulations.

This handbook tells you about some of these regulations, and gives details about staff, assessments, handing in work, attendance requirements, safety procedures, and guidance on communication and IT skills, etc. In your induction file there is also further information about your role in the development of your Personal Development Portfolio, which will form a central part of your personal development plan.

You will receive separate module booklets for each module you are studying, which will be available on BlackBoard. These will give detailed timetables and details of assessments. It is your responsibility to ensure that you receive these documents, are familiar with their contents and **use** them.

## 1.2 Rationale, aims and learning outcomes of the course

This list of the major learning outcomes of the programmes will give you an idea of the global learning goals. However in the module booklets you will see the syllabuses of the individual modules and their learning outcomes that will give your more information. You could also refer to the module descriptions, which are in effect summaries of the module booklets and are available on BlackBoard.

**At the end of the BSc(Hons) Chemistry programme you will have a knowledge and understanding of, and be able to:**

- Describe the major types of chemical reaction and the main characteristics associated with them including the stereochemistry and nomenclature of reactants, starting materials and products.
- Discuss the principles and procedures used in chemical analysis and the characterisation of chemical compounds, including spectroscopy.
- Apply the key elements of physical chemistry, including thermodynamics and kinetics.
- Describe characteristic properties of elements and their compounds, state of matter and the theories used to describe them.
- Deliberate on major issues currently at the frontiers of chemical research and development, including initiatives in Green Chemistry.

**At the end of the BSc(Hons) Chemistry programme you will have obtained the following cognitive skills and be able to:**

- Evaluate and analyse problems and plan novel strategies for their solution.
- Apply knowledge and understanding of chemical systems to the solution of qualitative and quantitative problems of a familiar and unfamiliar nature.
- Evaluate, interpret and synthesise chemical information and data.
- Present scientific material and arguments clearly and correctly, using a variety of presentation media to range of audiences.

**At the end of the BSc(Hons) Chemistry programme you will be able to:**

- Apply knowledge and understanding of the essential concepts, principles and theories relating to the major types of chemical reaction and the main characteristics associated with them including the stereochemistry and nomenclature of reactants, starting materials and products.
- Handle chemical materials safely, taking into account their physical and chemical properties, including and specific hazards.
- Conduct standard laboratory procedures involved in synthetic and analytical work.
- Monitor, by observation and measurements chemical properties, events or changes, and systematically and reliably record and document the findings.
- Plan, design and execute practical investigations, from problem recognition stage through to the evaluation and appraisal of results and findings; this to include the ability to select appropriate techniques and procedures.

**During the BSc(Hons) Chemistry programme you will also develop transferable skills and be able to:**

- Demonstrate communication skills, covering a range of communication media.
- Exhibit numeracy and computational skills, including ICT skills and information retrieval.
- Show evidence of interpersonal skills, relating to the ability to interact with other people and to engage in team-working.
- Display time-management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working.

Most students registered on the BSc(Hons) Chemistry programme will go on to study and achieve a Bachelor of Science degree with Honours; however, you may also exit your degree scheme with a Bachelor of Science degree without honours, a Diploma in Higher Education (DipHE) or a Certificate in Higher Education (CertHE).

**At the end of the MChem Chemistry programme you will have met all the Learning Outcomes above, but in addition you will have a knowledge and understanding of, and be able to:**

- Assess an unfamiliar problem and be able to design and implement a suitable solution.
- Design, plan and implement research questions to problems in the chemical sciences including evaluation of hazards and environmental effects.

- Develop general strategies including the identification of additional information required and problems where there is not a unique solution.

**At the end of the MChem Chemistry programme you will have met all the Learning Outcomes above, but in addition you will have obtained the following cognitive skills and be able to:**

- Assimilate, evaluate and present research results objectively.
- Undertake an individual research project, the outcome of which is potentially publishable.
- Assess the success of such a project.

**At the end of the MChem Chemistry programme you will have met all the Learning Outcomes above, but in addition you will be able to:**

- Work independently, under minimum supervision, and be self-critical in the evaluation of risks, experimental procedures and outcomes.
- Use an understanding of the limits of accuracy of experimental data to inform the planning of future work. Conduct standard laboratory procedures involved in synthetic and analytical work.

**During the MChem Chemistry programme you will have developed the transferable skills above, but in addition you will be able to:**

- Demonstrate problem-solving skills including self-direction and originality.
- Communicate and interact with professionals from other disciplines.
- Ability to exercise initiative and personal responsibility.
- Ability to make decisions in complex and unpredictable situations.
- Independent learning ability required for continuing professional development.

Most students registered on the MChem Chemistry programme will go on to study and achieve an MChem degree with Honours, however, you may also exit your degree scheme with a Bachelor of Science degree with Honours, a Bachelor of Science degree without honours, a Diploma in Higher Education (DipHE) or a Certificate in Higher Education (CertHE).

### 1.3 Course Team

## Who's Who in the School of Physical Sciences and Computing

You will mainly be taught by staff from the School of Physical Sciences and Computing at the University. This list represents those co-ordinating particular areas, or who have particular roles in the delivery of the Course. We have included their qualifications so that you can see where their expertise lies.

#### Academic Staff

- Jennifer Readman BA (Hons Oxon) PhD (Chemistry)  
Course Leader & Lecturer (Physical Chemistry)  
e-mail: [jreadman@uclan.ac.uk](mailto:jreadman@uclan.ac.uk) Ext: 3578 Room JBF109
- Joseph Hayes BSc (Hons), PhD (Chemistry)  
Lecturer (Synthetic Biology)  
e-mail: [jhayes@uclan.ac.uk](mailto:jhayes@uclan.ac.uk) Ext 4334 Room MB50
- Richard Hull CSci CChem FRSC FHEA  
Professor (Chemistry and Fire Science)  
e-mail: [trhull@uclan.ac.uk](mailto:trhull@uclan.ac.uk) Ext 3543 Room JBF110
- Antonios Kelarakis BSc(Hons) Ph.D (Materials Chemistry)  
Guild Fellow (Nanochemistry)  
Email: [AKelarakis@uclan.ac.uk](mailto:AKelarakis@uclan.ac.uk) Ext 4172 Room JBF107
- Anna Kirkham BSc(Hons) Ph.D (Inorganic Chemistry)  
Associate Lecturer (Chemistry)  
Email: [AKirkham1@uclan.ac.uk](mailto:AKirkham1@uclan.ac.uk) Ext 3209 Room JBF105
- Chandrashekhhar Kulkarni BSc(Hons) Ph.D (Chemical Biology)  
Guild Fellow (Material Science)  
Email: [CVKulkarni@uclan.ac.uk](mailto:CVKulkarni@uclan.ac.uk)
- Susan Jones BSc(Hons) Ph.D (Physical Chemistry)  
Associate Lecturer (Chemistry)  
Email: [SHJones@uclan.ac.uk](mailto:SHJones@uclan.ac.uk) Ext 4023 Room MB63
- Janine McGuire BSc, PhD (Chemistry)  
Lecturer (Chemistry/ Forensic Chemistry)  
e-mail: [jgmcguire@uclan.ac.uk](mailto:jgmcguire@uclan.ac.uk) Ext 4385 Room JBF109
- Tapas Sen BSc, MSc, PhD (Chemistry), MRSC  
Senior Lecturer (Inorganic and Materials Chemistry)  
e-mail: [tsen@uclan.ac.uk](mailto:tsen@uclan.ac.uk) Ext 4371 Room JBF107
- Rob Smith BSc (Hons), PhD (Chemistry) MRSC  
**Admissions Tutor** Senior Lecturer (Organic and Medicinal Chemistry)  
e-mail: [rbsmith@uclan.ac.uk](mailto:rbsmith@uclan.ac.uk) Ext 4384 Room JBF006
- Anna Stec BSc, PhD (Fire Chemistry)  
Reader (Forensic Chemistry)  
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William Stockburn    BSc (Hons), MSc  
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Brenden Theaker    BSc(Hons), Ph.D (Analytical Chemistry)  
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Sergey Zlatogorsky    Hons Dip Specialist, PhD (Chemistry)  
Lecturer (Organometallic Chemistry)  
e-mail: [szlatogorsky@uclan.ac.uk](mailto:szlatogorsky@uclan.ac.uk) Ext 4336 Room MB50

## Academic Advisers

Your Academic Advisor will be assigned to you upon arrival and will be one of your lecturing team.

## 1.5 Campus Admin Services

Campus Admin Services provides academic administration support for students and staff and are located at Foster Hub close to the entrance to Foster Building (MB058). The hub is open from 8.45am until 5.15pm Monday to Thursday and until 4.00pm on Fridays. The hub can provide general assistance and advice regarding specific processes such as extenuating circumstances, extensions and appeals. Course specific information is also available via School blackboard sites.

The hub telephone number is 01772 891990/891991

The hub email contact is [fosterhub@uclan.ac.uk](mailto:fosterhub@uclan.ac.uk)

## 1.6 Communication

The University expects you to use your UCLan email address and check regularly for messages from staff. If you send us email messages from other addresses they risk being filtered out as potential spam and discarded unread.

Students should expect to receive a reply to emails from academic staff within 24 hours during the academic term. All student should use their UCLan email address to send emails and should include the following details: Name, Course and Year.

## 1.7 External Examiner

The University has appointed three External Examiner to your course who helps to ensure that the standards of your course are comparable to those provided at other higher education institutions in the UK. The name of this person, their position and home institution can be found below. If you wish to make contact with your External Examiner, you should do this through your Course Leader and not directly. External Examiner reports will be made available to you electronically. The School will also send a sample of student coursework to the external examiner(s) for external moderation purposes, once it has been marked and internally moderated by the course tutors. The sample will include work awarded the highest and lowest marks and awarded marks in the middle range.

Dr John Liggat  
Reader in Physical Chemistry  
Strathclyde University

Dr Ray Leslie  
Senior Lecturer in  
Organic Chemistry  
Nottingham Trent

Dr Phil Riby  
Senior Lecturer, Chemical and  
Pharmaceutical Analysis  
Liverpool John Moores



## 2. Structure of the course

### 2.1 Overall structure

Your degree is composed of modules, which can be full modules with a weighting of 1.0, half modules (weighting 0.5), double modules (weighting 2.0) or triple modules (weighting 3.0). Typically, degree programmes consist of a mixture of half, full and (more rarely) double modules. To achieve a Bachelor of Science Degree with Honours (BSc (Hons)) degree you must study the equivalent of 18 modules over the course and to achieve an Undergraduate Masters Degree with Honours (MChem) you must study the equivalent of 24 modules over the course as described in the following tables.

Modules are also given a credit weighting so that modules at different Universities can be compared, so 0.5 modules are worth 10 credits, 1.0 modules 20 credits, 2.0 modules 40 credits etc. Listed in appendices B and C are the different credits that are needed to achieve an Undergraduate Masters degree with Honours, Bachelor of Science degree with Honours, a Bachelor of Science degree without honours, a Diploma in Higher Education or a Certificate in Higher Education.

Full time students will take six modules in each year of their studies: part time students will normally take four modules per year.

#### How the Programmes are Managed

In section 1.3 this handbook you will find the names, telephone numbers, email addresses and room numbers of key people involved in the running of the Chemistry courses. Do not hesitate to contact them if you are unclear about anything.

The MChem Chemistry and BSc (Hons) Chemistry programmes have a Course Leader who is responsible for planning and co-ordinating course delivery. The Course Leader is Dr Jennifer E. Readman, room JBF109, tel 01772 89 3598, e-mail [jereadman@uclan.ac.uk](mailto:jereadman@uclan.ac.uk). You should see the course leader if there is anything going on with you that cannot be handled by a module tutor, personal tutor or retention tutor.

Each module you will study has a Module Tutor. The Module Tutor is responsible for the planning, delivery and assessment of the module. In some cases the Course Leader may also be the Module Tutor. You should see the module tutor about any issues to do with their module (coursework, revision, etc.).

In addition, there is a retention tutor for the course and their details can be found at the beginning of this book. They are responsible for organising groups for tutorials and practical sessions and authorising extensions to coursework deadlines if you have an acceptable reason for not completing your work on time. This is the person you should see if you wish to request an extension on any piece of work.

The Course Leader, Retention Tutor and Module Tutors form the Course Team which meets regularly to review the progress of the Course and take account of your comments - both positive and negative. Adjustments will be made to the delivery of the Course if the Team

feel that changes are necessary to make delivery and/or organisation better. At the end of the academic year all modules undergo review.

The University operates a quality assurance scheme which requires the Course Leader to report periodically to the Head of School to keep them in touch with progress. Every year the Course Leader submits a detailed report to the Head of School.

The full list of options indicated may not all be delivered every year, and this may depend on how many students choose that particular option. When accepting your offer of a place to study on this course, you are accepting that not all of these options will be running. At (or before) the start of each year, you will have an opportunity to discuss your course and preferred options with your tutor. The University will do all it reasonably can to ensure that you are able to undertake your preferred options.

### **Programme Structures**

The MChem Chemistry and BSc (Hons) Chemistry programmes are designed to provide you with a balanced foundation in chemical knowledge and skills but in so doing it is hoped that we will be able to instil in you an enthusiasm for the subject.

A feature of this programme which sets itself aside from most taught chemistry programmes is the emphasis placed on the interdisciplinary nature of the subject. Modules do not focus on the individual branches of chemistry but instead combine them to form common threads. Practical work is generally delivered through specialist experimental modules. Experiments are designed to bring together different aspects of the syllabus and hence emphasise the multidisciplinary approaches which are necessary when study chemical processes in industrial or research environments.

### **Year 1**

The modules that you take in your first year (stage 1) are shown below. The timetable of when your classes are will be posted on the course page on BlackBoard and was given to you at induction.

All students entering the course will undertake an evaluation of their chemical knowledge during week one. Depending on the outcome of this evaluation, students may be recommended to take FZ1063 Introduction to Chemistry as extra half module.

In semester 1 you will study Skills for Chemists [FZ1027] and Applied Skills in Chemistry [FZ1120], the aim of these modules are to ensure that you have the correct skills base to support your study of chemistry throughout the programme, this will include; a knowledge of mathematics, scientific applications of ICT, searching for information, referencing sources, and basic experimental procedures. The basics of medicinal chemistry will also be introduced [FZ1120].

In semester 1 you will also start your studies in Introduction to Chemical Concepts [FZ1026] which will introduce you to classical analytical techniques, kinetics and thermodynamics, the effect of stereochemistry on the reactivity of organic compounds and main group inorganic chemistry. The lecture/tutorial material delivered will be supported by the practical module

Experimental Techniques in Chemistry [FZ1025].

In semester 1 you will also start your studies in the area of green chemistry with New Frontiers in Chemistry [FZ1028]. The lecture material in this module is supported by a series of practical classes.

You will study Introduction to the Synthesis and Analysis of Organic Compounds [FZ1029] where will start to gain an understanding of the reactions of various functional groups and their inter-conversions, an introduction to basic spectroscopic and chromatographic techniques used for the analysis of organic molecules is also included. The lecture material in this module is supported by a series of practical classes.

<b>MODULES AT LEVEL 4</b>		<b>Module Size</b>	<b>Semester</b>
FZ1025	Experimental Techniques in Chemistry	1	Year
FZ1026	Introduction to Chemical Concepts	1	Year
FZ1027	Skills for Chemists	1	1
FZ1028	New Frontiers in Chemistry	1	Year
FZ1029	Introduction to the Synthesis and Analysis of Organic Compounds	1	Year
FZ1120	Applied Skills in Chemistry	1	1
<b>MAXIMUM</b>		<b>6</b>	

<b>Semester 1</b>	<b>FZ1025 Experimental Techniques in Chemistry (1.0, C)</b>	<b>FZ1026 Introduction to Chemical Concepts (1.0, C)</b>	<b>FZ1027 Skills for Chemists (1.0, C)</b>	<b>FZ1028 New Frontiers in Chemistry (1.0, C)</b>	<b>FZ1029 Introduction to the Synthesis and Analysis of Organic Compounds (1.0, C)</b>	<b>FZ1120 Applied Skills for Chemistry (1.0, C)</b>
<b>Semester 2</b>						

(Shaded sections indicate compulsory modules.)

## Year 2

The material contained within year 2 of the course builds upon that delivered in year 1. The theoretical aspects of Green Chemistry are delivered through the module Tools for Green Chemistry [FZ2029] which covers alternative strategies for organic synthesis, the use of alternative energy sources to promote reactivity and the use of catalysts.

You will be given the opportunity to investigate these processes in the laboratory with the module Green Chemistry in Action [FZ2028].

Elements of Inorganic and Organic Chemistry [FZ2026] covers the synthesis, properties and applications of both organic and inorganic substances. Physical Chemistry: Theory and Application in Analytical Science [FZ2025] deals with physicochemical processes and their application in an analytical science.

The practical application of the theory covered within FZ2025 and FZ2026 will be reinforced through the practical module Laboratory Studies of Chemical Concepts [FZ2024]. Concepts in Chemistry [FZ2027] contains elements of analytical, organometallic (main group) and physical chemistry (molecular spectroscopy) and this module contains its own dedicated experimental programme designed to underpin the lecture material.

<b>MODULES AT LEVEL 5</b>		<b>Module Size</b>	<b>Semester</b>
FZ2024	Laboratory Studies of Chemical Concepts	1	Year long

FZ2025	Physical Chemistry: Theory and Applications in Analytical Science	1	Year long
FZ2026	Elements of Inorganic and Organic Chemistry	1	Year long
FZ2027	Concepts in Chemistry	1	Year long
FZ2028	Green Chemistry in Action	1	Year long
FZ2029	Tools for Green Chemistry	1	Year long
<b>MAXIMUM</b>		<b>6</b>	

<b>Semester 1</b>	<b>FZ2024</b> Laboratory Studies of Chemical Concepts (1.0, C)	<b>FZ2025</b> Physical Chemistry: Theory and Application in Analytical Science (1.0, C)	<b>FZ2026</b> Elements of Inorganic and Organic Chemistry (1.0, C)	<b>FZ2027</b> Concepts in Chemistry (1.0, C)	<b>FZ2028</b> Green Chemistry in Action (1.0, C)	<b>FZ2029</b> Tools for Green Chemistry (1.0, C)
<b>Semester 2</b>						

(Shaded sections indicate compulsory modules.)

### Year 3

The chemistry taught in year 3 (at level 6) is intended to introduce you to concepts and techniques at the forefront of the subject. Medicinal and Bioinorganic Chemistry [FZ3120] introduces the chemistry of biologically important molecules, natural product chemistry and medicinal chemistry. While more specialist topics such as polymer chemistry, are taught alongside advanced approaches in organic synthesis and physicochemical processes in Advanced Concepts in Chemistry [FZ3025]. FZ3120 and FZ3025 are supported through the practical module Explorations of Chemical Processes [FZ3026].

The FZ3026 module uses a series of student driven mini projects to encourage you to use advanced analytical techniques to investigate chemical processes.

The module in Research Topics [FZ3027] will focus on subject specialisations within the teaching team and will use material from invited external speakers at the forefront of chemical research in these areas.

Subjects at the forefront of Green Chemistry are presented in Green Energy [FZ3029], which is delivered, in part, through the use of current research articles from appropriate journals.

### BSc (Hons) Chemistry

Those students studying for a BSc (Hons) Chemistry award will take the Chemistry Project [FZ3200] which is a year-long 40 credit module and has a literature review and associated practical element.

**Passing the project module is necessary for the award of a Bachelor of Science degree with honours.**

<b>MODULES AT LEVEL 6</b>	<b>Module Size</b>	<b>Semester</b>
FZ3025 Advanced Concepts in Chemistry	1	Year long
FZ3026 Exploration of Chemical Processes	1	Year long

FZ3027	Research Topics	0.5	Year long
FZ3029	Green Energy	0.5	2
FZ3120	Medicinal and Bioinorganic Chemistry	1	Year long
FZ3200	Chemistry Project	2	Year long
<b>MAXIMUM</b>		<b>6</b>	

<b>Semester 1</b>	<b>FZ3025 Advanced Concepts in Chemistry (1.0, C)</b>	<b>FZ3026 Exploration of Chemical Processes (1.0, C)</b>	<b>FZ3027 Research Topics (0.5, C)</b>	<b>FZ3120 Medicinal and Bioinorganic Chemistry (1.0, C)</b>		<b>FZ3200 Chemistry Project (2.0, C)</b>
<b>Semester 2</b>					<b>FZ3029 Green Energy (0.5, C)</b>	

### MChem Chemistry

For those students studying for a MChem Chemistry award, two additional modules will be studied to help prepare you for the 4<sup>th</sup> year. These are FZ3121 Research Methods which is concerned with research methodology relevant to scientists in academic environments and FZ3122 Organic Synthetics Methods which provides a thorough understanding of the reagents, reactions and procedures used in organic synthesis, the mechanistic consequences of synthetic organic reactions and the application of these to design successful syntheses of complex target molecules.

<b>MODULES AT LEVEL 6</b>		<b>Module Size</b>	<b>Semester</b>
FZ3025	Advanced Concepts in Chemistry	1	Year long
FZ3026	Exploration of Chemical Processes	1	Year long
FZ3027	Research Topics	0.5	Year long
FZ3029	Green Energy	0.5	2
FZ3120	Medicinal and Bioinorganic Chemistry	1	Year long
FZ3121	Research Methods	1	Year long
FZ3122	Organic Synthetic Methods	1	1
<b>MAXIMUM</b>		<b>6</b>	

<b>Semester 1</b>	<b>FZ3025 Advanced Concepts in Chemistry (1.0, C)</b>	<b>FZ3026 Exploration of Chemical Processes (1.0, C)</b>	<b>FZ3027 Research Topics (0.5, C)</b>	<b>FZ3120 Medicinal and Bioinorganic Chemistry (1.0, C)</b>	<b>FZ3121 Research Methods (1.0, C)</b>	<b>FZ3122 Organic Synthetic Methods (1.0, C)</b>
<b>Semester 2</b>						<b>FZ3029 Green Energy (0.5, C)</b>

(Shaded sections indicate compulsory modules.)

In the previous section the learning outcomes of the MChem Chemistry and BSc (Hons) Chemistry programmes were listed. It is often useful to know which learning outcomes will be covered in the different modules; the tables in Appendices B and C plot the different learning outcomes against each module.

## Year 4 – MChem Chemistry only

The chemistry taught at level 7 (in year 4) is intended to extend your knowledge of concepts and techniques and instil in you a critical awareness of advances at the forefront of the chemical sciences discipline. In addition it will also require you to adapt apply your knowledge and skills to the solution of unfamiliar problems, and conduct an extended research project independently, to a publishable standard and assess the success of such a project.

The research skills required to undertake such a project were delivered in the Research Methods module [FZ3121] and then you will pick one of two optional modules that focus on two main specialist areas of chemistry.

Applications in Synthesis [FZ4606] will focus on Synthetic Organic Chemistry, and together with FZ3122 Organic Synthetic Methods, would prepare you well for professional employment or doctoral studies in the area of synthetic organic chemistry.

Advanced Inorganic and Materials Chemistry [FZ4609] will focus on the chemistry behind materials for everyday applications such as electronic and magnetic materials and will also introduce students to nanomaterials preparing them for future study or a career in materials chemistry.

Physical Chemistry of Elemental and Surface Analysis [FZ4604] focus on instrumental techniques and analysis, whilst Analytical Forensic Toxicology [FZ4608] focuses on the interaction of drugs with the human body. Studying either of these modules will prepare you well for professional employment or doctoral studies in the area of analytical chemistry or instrumental analysis.

The Research Project [FZ4003] is a year-long 60 credit module which involves writing a proposal, an associated practical element and the production of a 10,000 word written submission.

**Passing the project module is necessary for the award of an Undergraduate Masters degree with honours,**

<b>COMPULSORY MODULES AT LEVEL 7</b>		<b>Module Size</b>	<b>Semester</b>
FZ4003	Research Project	3	Year long
FZ4606	Applications in Synthesis	1	2
FZ4609	Advanced Inorganic and Materials Chemistry	1	Year long
<b>OPTIONAL MODULES AT LEVEL 7</b>			
FZ4604	Physical Chemistry of Elemental and Surface Analysis	1	Year long
FZ4608	Analytical Forensic Toxicology	1	Year long
<b>MAXIMUM</b>		<b>6</b>	

<b>Semester 1</b>	<b>FZ4003 Research</b>	<b>FZ4609 Advanced</b>	<b>FZ4604 Elemental</b>	<b>FZ4608 Analytical</b>	

<b>Semester 2</b>	<b>Project (3.0, C)</b>	<b>Inorganic and Materials Chemistry (1.0, C)</b>	<b>and Surface Analysis (1.0, O)</b>	<b>Forensic Toxicology (1.0, O)</b>	<b>FZ4606 Applications in Synthesis (1.0, C)</b>
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(Shaded sections indicate compulsory modules.)

In the previous section the learning outcomes of the MChem Chemistry and BSc (Hons) Chemistry programmes were listed. It is often useful to know which learning outcomes will be covered in the different modules; the tables in Appendices B and C plot the different learning outcomes against each module.

### **Accreditation of Prior Learning**

If you consider that you may have already achieved some of the learning outcomes of the course through previous learning, please consult your course leader and gain advice from the APL unit to find out whether you can make a claim for [accreditation of prior learning](#) for part of your course.

### **Part Time Students**

Part-time students typically take 4 modules each year. An individual programme will be worked out for each student to fit in with their needs and the pre-requisite requirements of any of the modules

## **2.2 Modules available**

These are the modules that are included in the BSc (Hons) and MChem Chemistry programme specifications (see appendix 8.1).

You should note that all modules are supported by BlackBoard and you should familiarise yourself with this computer-based system. You will be given guidance on using BlackBoard at the beginning of your course.

### **2.2.1 Progression**

Discussions about your progression through the course normally take place in February each year. It is an opportunity for you to make plans for your study over the next academic year. The course team will tell you about the various modules / combinations available and you will both agree on the most appropriate (and legal) course of study for you.

A progression talk will be held by the Course Leader in February explaining which modules you should study next year, and what options are available to you.

## **2.3 Study Time**

### **2.3.1 Weekly timetable**

Your complete timetable is available on-line via the student portal at:

<https://www.uclan.ac.uk/students/study/timetabling.php>

You can check the times and locations of all your classes for each week. The timetable also lists which member of staff will be in charge of the session.

### **2.3.2 Expected hours of study**

The normal amount of work involved in achieving a successful outcome to your studies is to study for 10 hours per each credit you need to achieve – this includes attendance at UCLan and time spent in private study.

You are therefore expected to spend a total of 200 hours on each module. It is important that you allocate time reasonably equally to all modules constantly throughout the academic year if you want to gain a good honours degree.

On average then, you should be planning to do between 36 and 40 hours per week. Any lesser commitment is unlikely to produce a good degree. You should bear this in mind if you intend to undertake part-time employment or pursue other interests outside the curriculum.

### **2.3.3 Attendance Requirements**

You are required to attend all timetabled learning activities for each module. Notification of illness or exceptional requests for leave of absence must be made to your year tutor (details given in section 1.3) in a timely fashion.

All UCLan students are monitored on the Student Attendance Monitoring (SAM) system. In chemistry, each student's attendance is reviewed weekly. If you miss classes you may be asked to discuss your progress and commitment with the Course Leader. If you are unable to explain your absences you may be asked to see the Academic Lead. You may wish to check your attendance record through my UCLan.

If you have not gained the required authorisation for leave of absence, do not respond to communications from the University, and if you are absent for four weeks or more, you may be deemed to have withdrawn from the course. If this is the case, then the date of withdrawal will be recorded as the last day of attendance.

Some international students will have their attendance at specific classes monitored closely. If you are in this category under the UK Border Agency (UKBA), Points Based System (PBS) you **MUST** attend your course of study regularly; under PBS, UCLan is obliged to tell UKBA if you withdraw from a course, defer or suspend your studies, or if you fail to attend the course regularly.

Each time you are asked to enter your details on SAM you must remember that the University has a responsibility to keep information up to date and that **you must only enter your own details on the system**. To enter any other names would result in inaccurate records and be dishonest. Any student who is found to make false entries can be disciplined under the student guide to regulations.



Students should report non-attendance to the hub email – [FosterHubAttendance@uclan.ac.uk](mailto:FosterHubAttendance@uclan.ac.uk) or by telephoning the hub on 01772 891990 or 01772 891991. The interns will report the non-attendance to the academic adviser who can disseminate the information accordingly.

## 2.4 Data Protection

All of the personal information obtained from you and other sources in connection with your studies at the University will be held securely and will be used by the University both during your course and after you leave the University for a variety of purposes. These are all explained during the enrolment process at the commencement of your studies. If you would like a more detailed explanation of the University's policy on the use and disclosure of personal information, please contact the Information Governance Officer, Clark to the Board Service, University of Central Lancashire, Preston, PR1 2HE or email [DPFOIA@uclan.ac.uk](mailto:DPFOIA@uclan.ac.uk).

## 3. Approaches to teaching and learning

### 3.1 Expertise of staff

Most of the course is delivered by university staff but, where appropriate, experts in their own field are brought in to speak with authority from their own experience and expertise.

Staff in the chemistry teaching team are all qualified to postgraduate level, and have a wealth of teaching and research experience. Each member of the chemistry team have held either postdoctoral research positions or industrial posts before joining UCLan. The chemistry teach are aligned with The Centre for Materials Science (CMS). The CMS is an interdisciplinary research centre that provides a focus for the study of materials and their properties.

Particular areas of interest of the chemistry course team include:

- Nano-materials
- Novel materials
- Porous materials
- Nuclear materials
- Organic optical materials
- Drug Design and Delivery
- Polymers
- Microwave technology
- Materials processes
- Theoretical modelling

**For information about particular research areas, please refer to the maths webpages at [http://www.uclan.ac.uk/research/explore/themes/materials\\_science.php](http://www.uclan.ac.uk/research/explore/themes/materials_science.php)**

### 3.2 Learning and teaching methods

Chemistry is a practically based subject covering elements of a range of theoretical principles. Consequently the subject matter covered is diverse and the School therefore uses a diverse portfolio of teaching and assessment methods to reflect the nature of this subject. There are formal lectures followed up by small group tutorials in which the subject of the lecture is explored in detail. Practical skills are developed through practical sessions which may incorporate stand-alone practical exercises or individual or group projects. You are also encouraged to engage in independent study.

As with all university education **you** are responsible for your own learning; the lectures are merely the starting point and you will have to undertake a substantial amount of study in order to succeed.

The aim of the School is to promote deep and active learning and for you to achieve an appropriate balance between (a) the accumulation of subject specific knowledge (b) the understanding of subject-specific concepts (c) the application of these and (d) the development of general investigative and presentational skills.

In year 1 hour-long class sessions will normally be lectures or tutorials. In practice the lectures provide the theoretical background to the subject and tutorials often include problem solving exercises managed through pair or group work. The tutorials will also introduce you to the use of basic techniques and reinforce concepts introduced as theory. In addition tutorial work may also include the development of teamwork, planning, understanding accuracy and variability and the generation and testing of hypotheses.

Modules in years 2, 3 and 4 will also be delivered via a mixture of teaching methods, with increased emphasis on independent study followed by discussions, presentations and data-interpretation/problem-solving exercises. A range of other skills will be developed, e.g., communication skills through discussions and presentations.

These learning experiences are designed to help you to master the many aspects of chemistry during the course of your degree, and are assessed through an equally wide range of exercises, designed to develop and improve your key skills (e.g. writing, referencing, report writing) as well as to assess your knowledge.

The assessment methods for the modules are different; some will be by examination, some by written assessment, presentations or a combination of these. For example, in the first year coursework will include formats such as short notes, practical reports, structured workbooks, short directed essays and data handling exercises which will help to prepare you for longer essays, independent practical reports and practical examinations in the second year. The third year will include dissertation or a project report and use longer essays and more challenging data handling exercises. In terms of examinations, in the first year, multiple choice questions and short questions are the preferred format. In the second year, essay questions and data handling will be introduced; and the third and fourth years will comprise primarily longer essays and more challenging analysis of data.

### **3.3 Study skills**

General study skills are taught early in the degree: you will be taught how to take advantage of the resources available through the library, including a huge array of online materials. Specific study skills relevant to chemistry are taught throughout the degrees. For example, training in how to write formal reports and give oral presentations is given in the compulsory first-year module FZ1027. Further study skills are taught within the context of relevant individual modules.

For general study skills, there are a variety of services to support students; these include:

WISER [https://portal.uclan.ac.uk/webapps/portal/frameset.jsp?tab\\_tab\\_group\\_id=\\_33\\_1](https://portal.uclan.ac.uk/webapps/portal/frameset.jsp?tab_tab_group_id=_33_1)

LIS [https://portal.uclan.ac.uk/webapps/portal/frameset.jsp?tab\\_tab\\_group\\_id= 25\\_1](https://portal.uclan.ac.uk/webapps/portal/frameset.jsp?tab_tab_group_id= 25_1)

## 3.4 Learning resources

### 3.4.1 Learning Information Services (LIS)

Extensive [resources](#) are available to support your studies provided by LIS – library and IT staff. Take advantage of the free training sessions designed to enable you to gain all the skills you need for your research and study.

LIS provide access to a huge range of electronic resources – e-journals and databases, e-books, images and texts.

### 3.4.2 Electronic Resources

LIS provide access to a huge range of electronic resources – e-journals and databases, e-books, images and texts.

Lecturers and relevant module tutors will make material relevant to their modules available on Blackboard, the University's online learning platform. This material could include lecture notes, tutorial examples and solutions, past exam papers, links to online resources, and so on.

## 3.5 Personal development planning

While you are at university, you will learn many things. You already expect to learn lots of facts and techniques to do with criminal investigation, but you will also learn other things of which you might be unaware. You will learn how to study, how to work with other people, how to manage your time to meet deadlines, and so on. If you are to be an employable graduate it is vital that you can list in your CV the skills that employers value.

Employers are looking for skills such as:

- self-organisation
- team work
- good written communication
- good oral communication
- problem solving

To help you, we have introduced a system that aims to:

- help you to identify the **skills** you should be developing,
- help you to **identify** the ones you are weak in, and
- to take **action** to improve those skills.

This approach can broadly be described as **Personal Development Planning**, and can be defined as:

***A structured and supported process undertaken by an individual to reflect upon their own learning, performance and/or achievement and to plan for their personal, educational and career development.***

The University puts a high priority on your personal development, and so keeping a record of your achievements is encouraged and will help when you are applying for jobs. When you ask staff for a reference, they could use this information to help them provide more rounded detail.

### 3.6 Preparing for your career

Your future is important to us, so to make sure that you achieve your full potential whilst at university and beyond, your course has been designed with employability learning integrated into it. This is not extra to your degree, but an important part of it which will help you to show future employers just how valuable your degree is. These “Employability Essentials” take you on a journey of development that will help you to write your own personal story of your time at university:

- To begin with, you will explore your identity, your likes and dislikes, the things that are important to you and what you want to get out of life.
- Later, you will investigate a range of options including jobs and work experience, postgraduate study and self-employment,
- You will then be ready to learn how to successfully tackle the recruitment process.

You will be able to record your journey using Pebblepad, the university’s e-portfolio system, which will leave you with a permanent record of all the fantastic things you have achieved during your time at UCLan.

It’s your future: take charge of it!

[Careers](#) offers a range of support for you including:-

- career and employability advice and guidance appointments
- support to find work placements, internships, voluntary opportunities, part-time employment and live projects
- workshops, seminars, modules, certificates and events to develop your skills

Daily drop in service available from 09:00-17:00 for CV checks and initial careers information. For more information come along and visit the team (in Foster building near the main entrance) or access our careers and employability resources via the Student Portal.

On graduating from University with a degree in Chemistry the possibilities are almost endless. Obviously, the prospective material rewards (and security of employment) are of importance but what of the chance to make contributions that impact on Society?

Your employment potential with a Chemistry degree should be very high, whether or not you exploit your qualifications explicitly, and a career actually involving Chemistry would certainly be relevant and meaningful.

The chemical industry provides direct employment for 214,000 people within the UK and supports several hundred thousand additional jobs throughout the economy. 23% of the UK chemical industry is based within the NW region. The UK chemicals industry outperforms virtually all other UK manufacturing industries with an average growth rate of 2.9% compared to a 0.5% for all other manufacturing industries. The importance of the UK chemical industry to the balance of trade for the country cannot be overstated, it is the UK manufacturing number one exporter with a trade surplus of £4.5 billion. This has obvious implications on employment prospects, which are generally considered to be good with a wide variety of industries employing chemists in areas such as pharmaceuticals, paints, soaps and toiletries,

plastics etc. Remuneration is again above average with salaries in the sector currently 19% higher than the average in manufacturing generally.

Your University experience is not only about achieving your chosen award, it is also about developing as a person and realising your potential. We want you to gain the skills and attitudes that will help you to achieve your goals and aspirations.

## **4. Student support, guidance and conduct**

Your primary contact for advice on general academic matters is your academic advisor. They will advise you on matters like progression, modules, and so on. They also have a role in pastoral care, and can advise you on who to talk to in the university about a range of problems. In addition, there is the general advice desk for students called 'The i' – this is described below.

### **4.1 Academic Advisors**

Your academic advisor is there to offer pastoral care and general academic advice. You will meet your academic advisor in the first week of your studies, and then will have other meetings as often as you and the tutor feel they are needed. When your academic advisor asks for a meeting with you, you should prepare by thinking about how things are going – are there any problems you want to talk about or any questions you need to ask?

### **4.2 Student Support**

[The 'i'](#) is a central Student Information Centre and your first point of contact. You can obtain information on a wide range of topics including Council Tax Exemption Certificates, Bank and Confirmation of Study Letters, Portable Financial Credits, (continuing students only, Printing and Printer Credit, UCLan Cards, the 'i' shop and UCLan Financial Support Bursary (first year students only).

### **4.3 Students with disabilities**

If you have a disability that may affect your studies, please either contact the Disability Advisory Service - [disability@uclan.ac.uk](mailto:disability@uclan.ac.uk) - or let one of the course team know as soon as possible. With your agreement information will be passed on to the Disability Advisory Service. The University will make reasonable adjustments to accommodate your needs and to provide appropriate support for you to complete your study successfully. Where necessary, you will be asked for evidence to help identify appropriate adjustments.

### **Assessment arrangements for students with a disability**

Arrangements are made for students who have a disability/learning difficulty for which valid supporting evidence can be made available. Contact the Disability Adviser for advice and information, [disability@uclan.ac.uk](mailto:disability@uclan.ac.uk)

### **4.4 Health and Safety**

As a student of the University you are responsible for the safety of yourself and for that of others around you. You must understand and follow all the regulations and safety codes necessary for a safe campus environment. Please help to keep it safe by reporting any incidents, accidents or potentially unsafe situations to a member of staff as soon as possible.

Safety assessments have been undertaken for each module of your course and you will be advised of all applicable safety procedures and any specific safety issues during the induction to your course and modules. You must ensure that you understand and apply all necessary safety procedures. These form an essential element of your personal development and contribute to the safety of others. You will be given a laboratory health and safety briefing within your induction week as well as the start of each practical session.

#### **4.5 Conduct**

You will be expected to abide by the [Regulations for the Conduct of Students](#) in the University. UCLan expects you to behave in a respectful manner demonstrated by using appropriate language in class, and switching mobile phones / other devices off prior to attending classes.

If your behaviour is considered to be unacceptable, any member of staff is able to issue an informal oral warning and the University will support staff by invoking formal procedures where necessary. You can read more about UCLan expectations in the regulations for the Conduct of Students.

#### **4.6 Students' Union**

The Students' Union is the representative body for all UCLan students. The organisation exists separately from the University and is led by the elected officers of the Student Affairs Committee (SAC) as well as representatives on the Students' Council. The Students' Union building is located at the heart of the Preston campus, and is the hub for all student activities.

Representation and campaigning for students' rights is at the core of what we do and is encompassed by our tag line of, *Making Life Better for Students*. Should you wish to make a change to any aspect of your student experience, whether it be academically related or not, then the Union is where your voice can be heard, actions taken, or campaigns launched.

Your Union is also the home to a fantastic range of student-led [societies](#), [sports teams](#) and multitudes of volunteering opportunities. You can also receive help in finding part-time work, whilst you study. Not sure where to go pop into the [Opportunities Centre](#) on the ground floor of the Students' Union building and someone will point you in the right direction.

We hope your time at University is trouble free, but should you come into difficulties around anything from academic appeals, to issues with housing, benefits or debt, then our dedicated staff team in the [Advice and Representation Centre](#) are on hand to help. As we are independently run from the university, we can offer truly impartial advice.

More information on all these things, as well as details about all our (not-for-profit) commercial services, including our student supermarket (Essentials) and student-bar (Source) can be found at <http://www.uclansu.co.uk/>.

The Opportunities Centre is the Union's One Stop Shop to find employment or volunteering whilst you study. With thousands of jobs and voluntary positions advertised, agency work through the Bridge and information on over 2000 volunteer positions within the Union.

## 5. Assessment

Please note that all modules will be assessed. You are expected to attempt all required assessments for each module for which you are registered, and to do so at the times scheduled unless authorised extensions, special arrangements for disability, or extenuating circumstances allow you to defer your assessment.

### 5.1 Assessment Strategy

Assessment is inescapable in formal education, but we don't want it to be a nightmare for you. Assessment can be used not only to *grade* your understanding of a topic, but also to give you and us *feedback* about how you're doing.

Part of that process requires you to develop your skills at *self*-assessment. *You* will always be in a position to judge how much you know and have achieved, and it's important that you accept that responsibility. During the course, you must be able to judge how you're doing in order to know when you've done enough work, and when you're having difficulty. Learning doesn't stop once you leave a classroom.

A variety of techniques of assessment will be used, some of it being of a continuous nature. Below, we'll briefly introduce you to the nature of these assessments.

Don't be 'afraid' to reveal your difficulties. We're here to help, and *nobody* gets it right all the time. The only person who never makes mistakes is the person who never tries anything. You will learn by *overcoming* mistakes and misunderstandings, not by avoiding or ignoring them.

In fact, reflecting on why you can't solve a problem may lead you to identify misunderstandings that you're not aware of. Don't worry about making mistakes, because we all do. It's an *essential* part of learning and trying something new.

Each module will have a number of learning outcomes. These are the things that you will be capable of doing when you have successfully completed the module. In order to determine whether or not you have achieved these outcomes we devise an assessment strategy. Because some outcomes are more easily assessed by coursework and others are more easily assessed by examination you will meet a wide variety of assessment methods throughout your programme in mathematics. This is because we always try to select the most appropriate assessment method for the particular learning outcome(s) that we are trying to assess at each stage.

### 5.2 Notification of assignments and examination arrangements

Because different modules will be assessed in different ways, there is no central rule for when or how assessments should be submitted. Some may be short pieces of handwritten work to be completed in class, some may be short projects to be typed up as formal reports and submitted online, and so on. For each module, when there is an assessed piece of work to be done the module tutor will give you a problem specification which tells you what, when and how to submit the resulting work. The tutor will also give you some indication of how the work will be marked.

### 5.3 Referencing

The main referencing system chemists use is numerical (Vancouver) referencing. More information can be found in "Study and Communication Skills for the Chemical Sciences" by Overton, Johnson & Scoot which is available in the UCLan Library. Citations and referencing will also be covered in the Year 1 Skills module FZ1027.

### 5.4 Confidential material

Within your course you are unlikely to have access to confidential information during the course. However, if you do, it is important to respect confidentiality. Any students who have to deal with confidential material will be briefed on this by their tutor at the time.

### 5.5 Dealing with difficulties in meeting assessment deadlines

Assignments must be submitted no later than the date on your assignment instructions / brief. If you anticipate that you will have difficulty in meeting assessment deadlines or you have missed or are likely to miss in-semester tests you must report this at the earliest possible opportunity to your module tutor who has set the work. The module tutor will then discuss how best to proceed from here.

**Authorisation of the late submission** of work requires written permission. Your School is authorised to give permission for **one extension period of between 1 and 10 working days** where appropriate evidence of good reason has been accepted and where submission within this timescale would be reasonable taking into account your circumstances ([Academic Regulations](#)).

You should complete and submit an [extension request form](#), with any supporting evidence, to your Administrative Hub (see section 1.5 for contact details). Further information is available on the Student Portal at:

[https://www.uclan.ac.uk/students/study/examinations\\_and\\_awards/extenuating\\_circumstances.php](https://www.uclan.ac.uk/students/study/examinations_and_awards/extenuating_circumstances.php)

We aim to let you know if the extension has been granted within 1 working day of the receipt of the request.

If you are unable to submit work within 10 working days after the submission date due to verifiable extenuating circumstances, you may submit a case for consideration in accordance with the University's Policies and Procedures on Extenuating Circumstances ([Academic Regulations](#) and [Assessment Handbook](#)).

#### 5.5.1 Extenuating circumstances

Some students face significant events in their personal life that occur after their course has started, which have a greater impact on their students than can be solved by the use of an extension. If this applies to you, the University is ready to support you both with regard to your course and your personal wellbeing through a process called Extenuating Circumstances (see Academic Regulations and Assessment Handbook).

Normally extenuating circumstances will relate to a change in your circumstances since you commenced your course, which have had a significant, adverse effect on your studies. Everyday occurrences such as colds or known conditions such as hay-fever will not qualify unless the effects are unusually severe and this is corroborated by a medical note. The



University does not look sympathetically on absences or delays caused by holiday commitments or by work commitments in the case of full-time students. The normal work commitments of part-time students would not constitute an extenuating circumstance. A disability or learning difficulty does not constitute an extenuating circumstance (see [Academic Regulations](#)).

Further information is available on the Student Portal at: [https://www.uclan.ac.uk/students/study/examinations\\_and\\_awards/extenuating\\_circumstances.php](https://www.uclan.ac.uk/students/study/examinations_and_awards/extenuating_circumstances.php)

You can apply for extenuating circumstances online via myUCLan. You must apply no later than 3 days after any examination or assessment submission date. Do not wait until you receive your assessment results to submit a claim. It is in your own interests to submit the claim as soon as possible.

You will be expected to re-submit claims for extenuating circumstances for each semester

Further information about the submission process is available at: [https://www.uclan.ac.uk/students/study/examinations\\_and\\_awards/extenuating\\_circumstances\\_submission.php](https://www.uclan.ac.uk/students/study/examinations_and_awards/extenuating_circumstances_submission.php) All evidence that is provided relating to extenuating circumstances will be treated in a sensitive and confidential manner. Supporting evidence will not be kept for longer than is necessary and will be destroyed shortly after the end of the current academic year.

In determining assessment recommendations, Assessment Boards will consider properly submitted claims from students who believe their performance has been adversely affected by extenuating circumstances. N.B. Assessment Boards are not permitted to alter individual assessment marks to take account of extenuating circumstances ([Academic Regulations](#) and [Assessment Handbook](#)).

### **5.5.2 Late submissions**

If you submit work late and unauthorised, a universal penalty will be applied in relation to your work:

- If you submit work within 5 working days following the published submission date you will obtain the minimum pass mark for that element of assessment.
- Work submitted later than 5 working days after the published submission date will be awarded a mark of 0% for that element of assessment.
- Unauthorised late submission at resubmission will automatically be awarded a mark of 0% for that element of assessment.

### **5.6 Feedback Following Assessments**

UCLan is committed to giving you clear, legible and informative feedback for all your assessments ([Academic Regulations](#)). You are expected to review and reflect on your feedback and learn from each experience to improve your performance as you progress through the course.

You will be provided with generic feedback for in-module formative and summative elements of assessment which contribute to a module within 15 working days of the scheduled submission or examination date. Generic feedback on end of module assessment and dissertations will be made available within 15 days of publication of results. Feedback may be oral, written, posted on a website or other.

## 5.7 Cheating, plagiarism, collusion or re-presentation

You are required to sign a declaration indicating that individual work submitted for an assessment is your own.

If you attempt to influence the standard of the award you obtain through cheating, plagiarism or collusion, it will be considered as a serious academic and disciplinary offence as described within the [Academic Regulations](#) and the [Assessment Handbook](#) .

- Cheating is any deliberate attempt to deceive and covers a range of offences described in the [Assessment Handbook](#).
- Plagiarism describes copying from the works of another person without suitably attributing the published or unpublished works of others. This means that all quotes, ideas, opinions, music and images should be acknowledged and referenced within your assignments.
- Collusion is an attempt to deceive the examiners by disguising the true authorship of an assignment by copying, or imitating in close detail another student's work - this includes with the other student's consent and also when 2 or more students divide the elements of an assignment amongst themselves and copy one another's answers. It does not include the normal situation in which you learn from your peers and share ideas, as this generates the knowledge and understanding necessary for each individual to independently undertake an assignment; nor should it be confused with group work on an assignment which is specifically authorised in the assignment brief.
- Re-presentation is an attempt to gain credit twice for the same piece of work.

The process of investigation and penalties which will be applied can be reviewed in the Assessment Handbook. If an allegation is found to be proven then the appropriate penalty will be implemented:

In the case of a single offence of cheating, plagiarism, collusion or re-presentation:

- the penalty will be 0% for the element of assessment, and an overall fail for the module.
- the plagiarised element of assessment must be resubmitted to the required standard and the mark for the module following resubmission will be restricted to the minimum pass mark.
- when it is detected for the first time on a resubmission for an already failed module, no further resubmission for the module will be permitted, and the appropriate fail grade will be awarded.

In the event of a repeat offence of cheating, plagiarism, collusion or re-presentation (irrespective of whether the repeat offence involves the same form of unfair means) on the same or any other module within the course:

- the appropriate penalty will be 0% for the module with no opportunity for re-assessment. This penalty does not preclude you being able to retake the module in a subsequent year.

The penalties will apply if you transfer from one UCLan course to another during your period of study and module credits gained on the former course are transferred to the current course.

Contact the [Students' Union Advice and Representation](#) by emailing: [suadvice@uclan.ac.uk](mailto:suadvice@uclan.ac.uk) for support and guidance.

## 5.8 Appeals against assessment board decisions

If you consider that you have a reason to appeal against an assessment board decision, please bear in mind that your reasons must fall within the grounds specified in the University [Academic Regulations](#): Section I. You cannot appeal simply because you disagree with the mark given. The specified grounds for appeal are:

1. that an Assessment Board has given insufficient weight to extenuating circumstances;
2. that the student's academic performance has been adversely affected by extenuating circumstances which the student has, **for good reason**, been unable to make known to the Assessment Board;
3. that there has been a material administrative error at a stage of the examining process, or that some material irregularities have occurred;
4. that the assessment procedure and/or examinations have not been conducted in accordance with the approved regulations.

If you want to appeal, then you must do so within 14 days of your results being published. The onus is on you to find out your results and submit your appeal on time. Contact the [Students' Union Advice and Representation Centre](#) by emailing: [suadvice@uclan.ac.uk](mailto:suadvice@uclan.ac.uk) for support and guidance.

You can find term dates and dates for the publication of results online by following the link: [http://www.uclan.ac.uk/students/study/academic\\_calendar.php](http://www.uclan.ac.uk/students/study/academic_calendar.php)

## 6. Course regulations

### 6.1 Course requirements

You will be aiming for one of two degree awards offered in chemistry at UCLan: the Bachelor Degree (three years of full-time study) or the undergraduate Masters Degree (four years of full-time study).

Successful completion of your programme of study will lead to either the award of an MChem Chemistry or a BSc (Hons) Chemistry. Both awards have been accredited by the Royal Society of Chemistry

### 6.2 Classification of Awards

The University publishes the principles underpinning the way in which awards and results are decided in [Academic Regulations](#). Decisions about the overall classification of awards are made by Assessment Boards through the application of the academic and relevant course regulations.

For the MChem Chemistry award the degree classification is based on the highest classification achieved from either:

1. The Average Percentage Mark (APM) of your 12 (240 credits) modules at Stage 3
- or

- The Average Percentage Mark (APM) of your 18 (360 credits) modules at Stage 2/3, whichever is the higher.

The formula used is:

$$\text{APM} = \frac{m_1 l_1 c_1 + m_2 l_2 c_2 + \dots + m_n l_n c_n}{l_1 c_1 + l_2 c_2 + \dots + l_n c_n}$$

Put simply, the APM calculation takes into account the mark you got in a module (m), the size or credit of the module (c) and also the level of the module (l), so that the modules are weighted which recognises higher level study through the ratio 1:2:3:4 for Level 4: Level 5: Level 6: Level 7.

For the BSc (Hons) Chemistry award the degree classification is based on the highest classification achieved from either:

- The Average Percentage Mark (APM) of your level 5 and 6 modules (generally taken in years 2 and 3 of a full time course) weighted 3:7.

or

- Your Average Percentage Mark in year 3 only (i.e your level 6 modules)

In either case, the Average Percentage Mark (APM) will be calculated and used to determine the award classification as follows:

#### **APM**

70-100%	First Class Honours Degree
60-69.99%	Upper Second Class Honours Degree
50-59.99%	Lower Second Class Honours Degree
40-49.99%	Third Class Honours Degree

A minimum APM of X9.5 will be rounded up automatically to the next degree classification.

In addition for the BSc(Hons) Chemistry award the Assessment Board may, by the discretion given to it in the Academic Regulations, classify students by taking into account their overall profile and performance with the normal minimum requirement that:

- A minimum of three modules (60 credits) at level 6 are in the classification band
- and**
- The APM is no lower than two percentage points below that required for the higher classification.

#### **Exit Awards**

There are also several alternative 'exit' awards shown in the table below that you may wish to consider.

Bachelor Degree with Honours	360 credits including a minimum of 220 from level 5 modules and 120 from level 6 modules
Bachelor Pass Degree	320 credits including a minimum of 180 from level 5 modules and 60 from level 6 modules
Diploma of Higher Education	240 credits including a minimum of 100 from level 5 modules
Certificate of Higher Education	120 credits from level 4 modules

For calculating awards 1 module = 20 credits

## Appeals

If you consider that you have a reason to appeal against an assessment board decision, please bear in mind that your reasons must fall within the grounds specified in the University Academic Regulations: Section I. You cannot appeal simply because you disagree with the mark given. The specified grounds for appeal are:

1. that an Assessment Board has given insufficient weight to extenuating circumstances;
2. that the student's academic performance has been adversely affected by extenuating circumstances which the student has, **for good reason**, been unable to make known to the Assessment Board;
3. that there has been a material administrative error at a stage of the examining process, or that some material irregularities have occurred;
4. that the assessment procedure and/or examinations have not been conducted in accordance with the approved regulations.

If you want to appeal, then you must do so within 14 days of your results being published. The onus is on you to find out your results and submit your appeal on time. Contact the Students' Union Advice Centre [suadvice@uclan.ac.uk](mailto:suadvice@uclan.ac.uk) for support and advice.

The dates for the publication of results can be found on the [academic calendar](#).

## 7. Student voice

You can play an important part in the process of improving the quality of this course through the feedback you give. In addition to the on-going discussion with the course team throughout the year, there are a range of mechanisms for you to feedback about your experience of teaching and learning. We aim to respond to your feedback and let you know of our plans for improvement.

The Students Union can support you in voicing your opinion, provide on-going advice and support, and encourage your involvement in all feedback opportunities. They will be requesting that you complete the National Student Survey (during semester 2 for students in their final year of study) or the UCLan Student Survey (all other students).

The Students' Union and University work closely together to ensure that the student voice is heard in all matters of student-life. We encourage students to provide constructive feedback throughout their time at university, through course reps, surveys and any other appropriate means,

The Union's Student Affairs Committee (SAC), members of Students' Council and School Presidents each have particular representative responsibilities, and are involved with decision making committees as high as the University Board. Therefore it is very important students engage with the democratic processes of the Students' Union and elect the students they see as most able to represent them.

Students are welcomed to voice their opinion on matters relevant to the chemistry degrees throughout their studies. Twice per year there are meetings of the Student-Staff Liaison Committee (SSLC), as discussed below. Also, if and when any problems arise with specific modules, the module tutor will be happy to discuss the issues with individual students, and if

problems arise which affect multiple modules, this can be raised by students with their academic advisor or the course leader.

## 7.1 Course Representatives and School Presidents

A course representative is a student who represents their fellow students' views and opinions to the course team, school, university and students' union. Course representatives work proactively and diplomatically to improve the academic and non-academic experiences of students.

The role of a course representative is extremely beneficial to both students on your course and the university. It enables students to have ownership of their student experience and voice their opinions and share positive practice with the course team, primarily the Student Staff Liaison Committee Meetings (see below).

Course representatives will be elected every year either in April or September. Alongside receiving recognition, support and respect being a course representative is a great opportunity to enhance your employability skills. If you are interested in becoming a course representative and wish to find out more about the role visit the [Students' Union](#) website or by emailing: [coursereps@uclan.ac.uk](mailto:coursereps@uclan.ac.uk).

School Presidents meanwhile are annually elected representatives who voice the opinions of students within each school. They communicate and engage with students in their school to gain feedback and work in partnership with senior management to create positive change. They are also trained to support and signpost course representatives where needed. If you wish to find out who is your School President or more about the role visit the [Students' Union website](#) or email: [coursereps@uclan.ac.uk](mailto:coursereps@uclan.ac.uk)

## 7.2 Student Staff Liaison Committee Meetings (SSLC)

The purpose of a SSLC meeting is to provide the opportunity for course representatives to feedback to staff about the course, the overall student experience and to inform developments which will improve future courses. These meetings are normally scheduled once per semester.

Meetings will be facilitated using guidelines and a record of the meeting will be provided with any decisions and / or responses made and / or actions taken as a result of the discussions held. The meetings include discussion of items forwarded by course representatives, normally related to the following agenda items (dependent on time of year).

The course team encourage student feedback in all areas and recognise that additional items for discussion may also be raised at the meeting

- Update on actions completed since the last meeting
- Feedback about the previous year – discussion of external examiner's report; outcomes of National /UCLan student surveys.
- Review of enrolment / induction experience;
- Course organisation and management (from each individual year group, and the course overall);
- Experience of modules - teaching, assessment, feedback;
- Experience of academic support which may include e.g. Personal Development Planning, academic advisor arrangements;

- Other aspects of University life relevant to student experience e.g. learning resources, IT, library;
- Any other issues raised by students or staff.

### **7.3 Complaints**

The University recognises that there may be occasions when you have cause for complaint about the service you have received, when this happens, the complaints procedure is intended to provide an accessible, fair and straightforward system which ensures an effective, prompt and appropriate response. Click on this link for more information [Complaints Procedure](#)

## 8. Appendices

### 8.1 Programme Specification

#### Appendix B Programme Specification – BSc (Hons)

**UNIVERSITY OF CENTRAL LANCASHIRE**

**Programme Specification**

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided.

*Sources of information on the programme can be found in Section 17*

<b>1. Awarding Institution / Body</b>	University of Central Lancashire
<b>2. Teaching Institution and Location of Delivery</b>	University of Central Lancashire Preston Campus
<b>3. University School/Centre</b>	Physical Sciences and Computing
<b>4. External Accreditation</b>	N/A
<b>5. Title of Final Award</b>	BSc (Hons) Chemistry
<b>6. Modes of Attendance offered</b>	Full time
<b>7. UCAS Code</b>	F100
<b>8. Relevant Subject Benchmarking Group(s)</b>	Chemistry
<b>9. Other external influences</b>	Royal Society of Chemistry
<b>10. Date of production/revision of this form</b>	June 2012 Updated September 2013 July 2015
<b>11. Aims of the Programme</b>	<ul style="list-style-type: none"><li>• To instil in students a sense of enthusiasm for chemistry, an appreciation of its application in different contexts and to involve them in an intellectually stimulating and satisfying experience of learning and studying.</li><li>• To provide students with a broad and balanced foundation of chemical knowledge and practical skills.</li></ul>



<ul style="list-style-type: none"> <li>To develop in students the ability to apply their chemical knowledge and skills to the solution of theoretical and practical problems in chemistry.</li> <li>To develop in students, through an education in chemistry, a range of transferable skills, of value in chemical and non-chemical employment.</li> <li>To provide students with a knowledge and skills base from which they can proceed to further studies in specialised areas of chemistry or multi-disciplinary areas involving chemistry.</li> </ul>
<b>12. Learning Outcomes, Teaching, Learning and Assessment Methods</b>
<b>A. Knowledge and Understanding</b>
<p>A1. Describe the major types of chemical reaction and the main characteristics associated with them including the stereochemistry and nomenclature of reactants, starting materials and products.</p> <p>A2. Discuss the principles and procedures used in chemical analysis and the characterisation of chemical compounds, including spectroscopy.</p> <p>A3. Apply the key elements of physical chemistry, including thermodynamics and kinetics.</p> <p>A4. Describe characteristic properties of elements and their compounds, state of matter and the theories used to describe them.</p> <p>A5. Deliberate on major issues currently at the frontiers of chemical research and development, including initiatives in Green, Medicinal and Nano Chemistry.</p>
<b>Teaching and Learning Methods</b>
Lectures, tutorials, laboratory classes, directed reading, problem-solving, case studies, discussions. The most appropriate methods will be dependent on module.
<b>Assessment methods</b>
Workbooks, preparation of short notes, essays, reports, practical reports, group and individual presentations, viva voce and end of module seen and unseen examinations. Detail dependent on module.
<b>B. Subject-specific skills</b>
<p>B1. Apply knowledge and understanding of the essential concepts, principles and theories relating to the major types of chemical reaction and the main characteristics associated with them including the stereochemistry and nomenclature of reactants, starting materials and products.</p> <p>B2. Effectively use chemical materials safely, taking into account their physical and chemical properties, including specific hazards.</p> <p>B3. Conduct standard laboratory procedures involved in synthetic and analytical work.</p> <p>B4. Monitor, by observation and measurements chemical properties, events or changes, and systematically and reliably record and document the findings.</p> <p>B5. Plan, design and execute practical investigations, from problem recognition stage through to the evaluation and appraisal of results and findings; this to include the ability to select appropriate techniques and procedures.</p>
<b>Teaching and Learning Methods</b>
Lectures, tutorials and seminars, laboratory classes with workbook or practical manuals; safe working practices described. Preparation of laboratory reports and interpretation of other data. Detail module dependent.
<b>Assessment methods</b>
Practical reports, laboratory notebooks, data interpretation, and report writing and a viva voce. Detail module dependent.
<b>C. Thinking Skills</b>
<p>C1. Evaluate and analyse problems and plan novel strategies for their solution;</p> <p>C2. Apply knowledge and understanding of chemical systems to the solution of qualitative and quantitative problems of a familiar and unfamiliar nature.</p> <p>C3. Evaluate, interpret and synthesise chemical information and data.</p> <p>C4. Present scientific material and arguments clearly and correctly, using a variety of presentation media to a range of audiences.</p>
<b>Teaching and Learning Methods</b>
Skills developed through lectures, data interpretation, case studies, practical work, research project, presentations, problem solving. Detail dependent on module.

<b>Assessment methods</b>
Workbooks, preparation of short notes, essays, reports, practical reports, group and individual presentations, a viva voce and end of module seen and unseen examinations. Detail dependent on module.

<b>D. Other skills relevant to employability and personal development</b>
D1. Effectively use communication skills, covering a range of communication media. D2. Exhibit numeracy and computational skills, including ICT skills and information retrieval. D3. Show evidence of interpersonal skills, relating to the ability to interact with other people and to engage in team-working. D4. Display time-management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working.

<b>Teaching and Learning Methods</b>
Discussions and presentations; numeracy and statistics in association with practical work; IT through coursework; teamwork through class work in tutorials, case studies and problem solving. Details dependent on module.

<b>Assessment methods</b>
Written reports, oral presentations, word processed documents, PowerPoint presentations, data analysis and presentation, collating information from various sources, group projects and presentations; individual presentations and a viva voce. Detail dependent on module.

13. Programme Structures*				14. Awards and Credits*
Level	Module Code	Module Title	Credit rating	
Level 6	FZ3200	Chemistry Project	40 (C)	<b>Bachelor Honours Degree in Chemistry</b> Requires 360 credits including a minimum of 220 at Level 5 or above and 100 at Level 6
	FZ3025	Advanced Concepts in Chemistry	20 (Comp)	
	FZ3026	Explorations of Chemical Processes	20 (Comp)	
	FZ3027	Research Topics	10 (Comp)	
	FZ3029	Green Energy	10 (Comp)	
	FZ3120	Medicinal and Bioinorganic Chemistry	20 (Comp)	
Level 5	FZ2024	Laboratory Studies of Chemical Concepts	20 (Comp)	<b>Diploma of Higher Education in Chemistry</b> Requires 240 credits including a minimum of 100 at Level 5 or above
	FZ2025	Physical Chemistry: Theory and Applications in Analytical Science	20 (Comp)	
	FZ2026	Elements of Inorganic and Organic Chemistry	20 (Comp)	
	FZ2027	Concepts in Chemistry	20 (Comp)	
	FZ2028	Green Chemistry in Action	20 (Comp)	
	FZ2029	Tools for Green Chemistry	20 (Comp)	

Level 4	FZ1025	Experimental Techniques in Chemistry	20 (Comp)	<b>Certificate of Higher Education in Chemistry</b> Requires 120 credits at Level 4 or above
	FZ1026	Introduction to Chemical Concepts	20 (Comp)	
	FZ1027	Skills for Chemists	20 (Comp)	
	FZ1028	New Frontiers in Chemistry	20 (Comp)	
	FZ1029	Introduction to the Synthesis and Analysis of Organic Compounds	20 (Comp)	
	FZ1120	Applied Skills for Chemists	20 (Comp)	

### 15. Personal Development Planning

PDP is delivered and monitored through skills modules and the personal tutor system. Students are provided with a PDP handbook in electronic format and are introduced to the idea by their personal tutor (PT). Their PT will then guide them throughout their time at university, both in constructing their PDP and in making sure that they are developing the right skills, helping them to identify and address any issues.

Each student sees their PT six times a year (seven in year 1) for a small group tutorial where the PT and other students will discuss a particular skill or employability issue. Typically the student will have prepared a document or done a task in preparation for the meeting. Topics targeted at meetings include time management and vocabulary developing at Level 4, ranging up to psychometric testing and help with job applications at Level 6. These tutorials help students to identify and develop their skills and also encourage a culture of confidence between tutee and PT, so that if any specific problems arise with a student the PT will be in a position to assist.

The PT topics are constantly reviewed and updated in response to current practice in the workplace and to feedback from PTs and tutees. PTs insist on seeing a completed PDP before writing references.

### 16. Admissions criteria

Applicants will normally be required to have, one of:

BBC at A2 including Chemistry. ND DMM. IB 25P including grade 5 in Chem. Access to HE.

In addition applicants will be required to have Maths and English GCSE at Grade C.

Applicants will be required to have a minimum level of proficiency in English Language equivalent to IELTS grade 6 with no subscore lower than 5.5.

Applications from individuals with non-standard qualifications, relevant work or life experience and who can demonstrate the ability to cope with and benefit from degree-level studies are welcome. If candidates have not studied recently they may be required to undertake an Access programme. APL/APEL will be assessed through standard University procedures.

Please consult the UCLAN admissions department for the most up to date requirements.

Programme Specifications include minimum entry requirements, including academic qualifications, together with appropriate experience and skills required for entry to study. These criteria may be expressed as a range rather than a specific grade. Amendments to entry requirements may have been made after these documents were published and you should consult the University's website for the most up to date information.

Students will be informed of their personal minimum entry criteria in their offer letter.

#### **17. Key sources of information about the programme**

- University web site ([www.uclan.ac.uk](http://www.uclan.ac.uk))
- UCAS web site ([www.ucas.ac.uk](http://www.ucas.ac.uk))
- School website ([www.uclan.ac.uk/forensic](http://www.uclan.ac.uk/forensic))
- Course Leader
- Admissions tutor

## 18. Curriculum Skills Map

Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Module Code	Module Title Core (C), Compulsory (COMP) or Option (O)	Programme Learning Outcomes																		
		Knowledge and understanding					Subject-specific Skills					Thinking Skills				Other skills relevant to employability and personal development				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D1	D2	D3	D4	
LEVEL 6	FZ3200	Chemistry Project	C						√	√	√	√	√	√	√	√	√		√	
	FZ3025	Advanced Concepts in Chemistry	COMP	√	√	√			√					√	√			√		
	FZ3026	Explorations of Chemical Processes	COMP						√	√	√	√	√			√	√		√	√
	FZ3027	Research Topics	COMP	√	√	√			√				√	√	√	√		√		
	FZ3029	Green Energy	COMP					√	√				√	√		√				
	FZ3120	Medicinal and Bioinorganic Chemistry	COMP	√					√					√	√	√	√		√	
LEVEL 5	FZ2024	Laboratory Studies of Chemical Concepts	COMP						√	√	√	√			√	√		√		
	FZ2025	Physical Chemistry: Theory and Applications in Analytical Science	COMP		√	√								√				√		
	FZ2026	Elements of Inorganic and Organic Chemistry	COMP	√			√							√						
	FZ2027	Concepts in Chemistry	COMP		√				√	√	√	√			√	√				
	FZ2028	Green Chemistry in Action	COMP					√	√	√	√			√	√	√	√			
	FZ2029	Tools for Green Chemistry	COMP					√						√						

LEVEL 4	FZ1025	Experimental Techniques in Chemistry	COMP						√	√	√				√	√			√		
	FZ1026	Introduction to Chemical Concepts	COMP	√		√	√		√												
	FZ1027	Skills for Chemists	COMP		√				√	√					√	√		√	√		
	FZ1028	New Frontiers in Chemistry	COMP					√	√				√			√	√		√	√	
	FZ1029	Introduction to the Synthesis and Analysis of Organic Compounds	COMP	√	√				√	√	√				√	√		√		√	
	FZ1120	Applied Skills for Chemists	COMP		√				√						√		√	√	√	√	√

**Note:** Mapping to other external frameworks, e.g. professional/statutory bodies, will be included within Student Course

## Appendix C Programme Specification – MChem

### UNIVERSITY OF CENTRAL LANCASHIRE

#### Programme Specification

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided.

*Sources of information on the programme can be found in Section 17*

<b>13. Awarding Institution / Body</b>	University of Central Lancashire
<b>14. Teaching Institution and Location of Delivery</b>	University of Central Lancashire Preston Campus
<b>15. University School/Centre</b>	Physical Sciences and Computing
<b>16. External Accreditation</b>	N/A
<b>17. Title of Final Award</b>	MChem in Chemistry
<b>18. Modes of Attendance offered</b>	Full time
<b>19. UCAS Code</b>	F102
<b>20. Relevant Subject Benchmarking Group(s)</b>	Chemistry QAA Masters Degree Characteristics
<b>21. Other external influences</b>	Royal Society of Chemistry
<b>22. Date of production/revision of this form</b>	June 2013 Updated September 2013 July 2015
<b>23. Aims of the Programme</b>	<ul style="list-style-type: none"><li>• To instil in students a sense of enthusiasm for chemistry, an appreciation of its application in different contexts and to involve them in an intellectually stimulating and satisfying experience of learning and studying.</li><li>• To provide students with a broad and balanced foundation of chemical knowledge and practical skills and an in-depth understanding of specialised areas of chemistry.</li><li>• To develop in students the ability to adapt and apply their chemical knowledge and skills to the solution of familiar and unfamiliar theoretical and practical problems in chemistry.</li><li>• To develop in students, through an education in chemistry, a range of transferable skills, of value in chemical and non-chemical employment.</li></ul>

- To provide students with a knowledge and skills base from which they can proceed to further studies in specialised areas of chemistry or multi-disciplinary areas involving chemistry.
- To instil a critical awareness of advances at the forefront of the chemical science discipline.

## **24. Learning Outcomes, Teaching, Learning and Assessment Methods**

### **A. Knowledge and Understanding**

- A6. Describe the major types of chemical reaction and the main characteristics associated with them including the stereochemistry and nomenclature of reactants, starting materials and products.
- A7. Discuss the principles and procedures used in chemical analysis and the characterisation of chemical compounds, including spectroscopy.
- A8. Apply the key elements of physical chemistry, including thermodynamics and kinetics.
- A9. Describe characteristic properties of elements and their compounds, state of matter and the theories used to describe them.
- A10. Deliberate on major issues currently at the frontiers of chemical research and development, including initiatives in Green, Medicinal and Nano Chemistry
- A11. Assess an unfamiliar problem and be able to design and implement a suitable solution.
- A12. Design, plan and implement research questions to problems in the chemical sciences including evaluation of hazards and environmental effects.
- A13. Develop general strategies including the identification of additional information required and problems where there is not a unique solution.

### **Teaching and Learning Methods**

Lectures, tutorials, laboratory classes, directed reading, problem-solving, case studies, discussions. The most appropriate methods will be used dependent on module.

### **Assessment methods**

Workbooks, preparation of short notes, essays, reports, practical reports, group and individual presentations, viva voce and end of module seen and unseen examinations. Details dependent on module.

### **B. Subject-specific skills**

- B6. Apply knowledge and understanding of the essential concepts, principles and theories relating to the major types of chemical reaction and the main characteristics associated with them including the stereochemistry and nomenclature of reactants, starting materials and products.
- B7. Safely use chemical materials, taking into account their physical and chemical properties, considering specific hazards.
- B8. Monitor, by observation and measurements chemical properties, events or changes, and systematically and reliably record and document the findings.
- B9. Plan, design and execute practical investigations, from problem recognition stage through to the evaluation and critical appraisal of results and findings; this to include the ability to select appropriate techniques and procedures.
- B10. Work independently, under minimum supervision, and be self-critical in the evaluation of risks, experimental procedures and outcomes.
- B11. Use an understanding of the limits of accuracy of experimental data to inform the planning of future work.

### **Teaching and Learning Methods**

Lectures, tutorials and seminars, laboratory classes with workbook or practical manuals; safe working practices described. Preparation of laboratory reports and interpretation of other data. The most appropriate methods will be used dependent on module.

### **Assessment methods**

Practical reports, laboratory notebooks, data interpretation, and report writing and a viva voce. Details dependent on module.

### **C. Thinking Skills**

- C5. Evaluate and analyse problems and plan novel strategies for their solution;
- C6. Apply knowledge and understanding of chemical systems to the solution of qualitative and quantitative problems of a familiar and unfamiliar nature.
- C7. Evaluate, interpret and synthesise chemical information and data.
- C8. Assimilate, evaluate and present research results objectively.



C9. Undertake an individual research project, the outcome of which is potentially publishable.  
 C10. Assess the success of such a project

#### Teaching and Learning Methods

Skills developed through lectures, data interpretation, case studies, practical work, research project, presentations, problem solving. The most appropriate methods will be used dependent on module.

#### Assessment methods

Workbooks, preparation of short notes, essays, reports, practical reports, group and individual presentations, a viva voce and end of module seen and unseen examinations. Details dependent on module.

#### D. Other skills relevant to employability and personal development

D1. Problem-solving skills including the demonstration of self-direction and originality  
 D2. Communicate and interact with professionals from other disciplines  
 D3. Ability to exercise initiative and personal responsibility  
 D4. Ability to make decisions in complex and unpredictable situations  
 D5. Independent learning ability required for continuing professional development.  
 D6. Work independently under minimum supervision.  
 D7. Develop and write a research project within guidelines and be able to assess the success of such a project.

#### Teaching and Learning Methods

Discussions and presentations; numeracy and statistics in association with practical work; IT through coursework; teamwork through class work in tutorials, case studies and problem solving. The most appropriate methods will be used dependent on module.

#### Assessment methods

Written reports, oral presentations, word processed documents, PowerPoint presentations, data analysis and presentation, collating information from various sources, group projects and presentations; individual presentations and a viva voce. Details dependent on module.

#### 13. Programme Structures\*

#### 14. Awards and Credits\*

Level	Module Code	Module Title	Credit rating	
Level 7	FZ4003	Research Project	60	<b>MChem in Chemistry</b> Requires 480 credits including a minimum of 120 at Level 7 or above and 200 at Level 6 or above and 360 at level 5 or above
	FZ4604	Physical Chemistry of Elemental and Surface Analysis	20 (o)	
	FZ4606	Applications in Synthesis	20	
	FZ4608	Analytical Forensic Toxicology	20 (o)	
	FZ4609	Advanced Inorganic and Materials Chemistry	20	
Level 6	FZ3121	Research Methods	20	<b>Bachelor Honours Degree in Chemical Sciences</b> Requires 360 credits including a minimum of 220 at Level 5 or above and 100 at Level 6  <b>Bachelor Degree in Chemistry</b> Requires 320 credits including a minimum of 180 at Level 5 or above and 60 at Level 6
	FZ3025	Advanced Concepts in Chemistry	20	
	FZ3026	Explorations of Chemical Processes	20	
	FZ3027	Research Topics	10	
	FZ3029	Green Energy	10	
	FZ3120	Medicinal and Bioinorganic Chemistry	20	
	FZ3122	Organic Synthetic Methods	20	

Level 5	FZ2024	Laboratory Studies of Chemical Concepts	20	<b>Diploma of Higher Education in Chemistry</b> Requires 240 credits including a minimum of 100 at Level 5 or above  <b>Students who do not achieve an APM of <math>\geq 50\%</math> at end of level 5 will not normally be allowed to continue with the MChem and will be transferred to BSc (Hons) Chemistry</b>
	FZ2025	Physical Chemistry: Theory and Applications in Analytical Science	20	
	FZ2026	Elements of Inorganic and Organic Chemistry	20	
	FZ2027	Concepts in Chemistry	20	
	FZ2028	Green Chemistry in Action	20	
	FZ2029	Tools for Green Chemistry	20	
Level 4	FZ1025	Experimental Techniques in Chemistry	20	<b>Certificate of Higher Education</b> Requires 120 credits at Level 4 or above
	FZ1026	Introduction to Chemical Concepts	20	
	FZ1027	Skills for Chemists	20	
	FZ1028	New Frontiers in Chemistry	20	
	FZ1029	Introduction to the Synthesis and Analysis of Organic Compounds	20	
	FZ1120	Applied Skills for Chemists	20	
<b>15. Personal Development Planning</b>				
<p>PDP is delivered and monitored through skills modules and the personal tutor system. Students are provided with a PDP handbook in electronic format and are introduced to the idea by their personal tutor (PT). Their PT will then guide them throughout their time at university, both in constructing their PDP and in making sure that they are developing the right skills, helping them to identify and address any issues.</p> <p>Each student sees their PT six times a year (seven in first year) for a small group tutorial where the PT and other students will discuss a particular skill or employability issue. Typically the student will have prepared a document or done a task in preparation for the meeting. Topics targeted at meetings include time management and vocabulary developing at Level 4, ranging up to psychometric testing and help with job applications at Level 6. These tutorials help students to identify and develop their skills and also encourage a culture of confidence between tutee and PT, so that if any specific problems arise with a student the PT will be in a position to assist.</p> <p>The PT topics are constantly reviewed and updated in response to current practice in the workplace and to feedback from PTs and tutees. PTs insist on seeing a completed PDP before writing references.</p>				
<b>16. Admissions criteria</b>				

Applicants will normally be required to have, one of:

BBC at A2 including Chem. ND DMM. IB 25P including grade 5 in Chemistry. Access to HE.

In addition applicants will be required to have Maths and English GCSE at Grade C (No GCSE Equivalent).

Applicants will be required to have a minimum level of proficiency in English Language equivalent to IELTS grade 6 with no subscore lower than 5.5

Applications from individuals with non-standard qualifications, relevant work or life experience and who can demonstrate the ability to cope with and benefit from degree-level studies are welcome. If candidates have not studied recently they may be required to undertake an Access programme. APL/APEL will be assessed through standard University procedures.

Please consult the UCLAN admissions department for the most up to date requirements.

#### **17. Key sources of information about the programme**

- University web site ([www.uclan.ac.uk](http://www.uclan.ac.uk))
- UCAS web site ([www.ucas.ac.uk](http://www.ucas.ac.uk))
- School website ([www.uclan.ac.uk/forensic](http://www.uclan.ac.uk/forensic))
- Course Leader
- Admissions tutor

## 18. Curriculum Skills Map

Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Module Code	Module Title	Core (C), Compulsory (COMP) or Option (O)	Programme Learning Outcomes																												
			Knowledge and understanding								Subject-specific Skills						Thinking Skills						Other skills relevant to employability and personal development								
			A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6	D7		
LEVEL 7	FZ4003	Research Project	C										✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	FZ4604	Physical Chemistry of Elemental and Surface Analysis	O		✓					✓	✓		✓	✓	✓		✓	✓	✓	✓	✓			✓	✓				✓		
	FZ4606	Applications in Synthesis	COMP		✓		✓		✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓		✓					✓		
	FZ4608	Analytical Forensic Toxicology	O		✓				✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓				✓		
	FZ4609	Advanced Inorganic and Materials Chemistry	COMP		✓		✓	✓			✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓		✓					✓	
LEVEL 6	FZ3025	Advanced Concepts in Chemistry	COMP	✓	✓	✓						✓							✓	✓											
	FZ3026	Explorations of Chemical Processes	COMP									✓	✓	✓	✓	✓		✓						✓	✓						
	FZ3027	Research Topics	COMP	✓	✓	✓						✓						✓	✓	✓											
	FZ3029	Green Energy	COMP					✓				✓						✓	✓												
	FZ3120	Medicinal and Bioinorganic Chemistry	COMP	✓								✓						✓	✓	✓											
	FZ3121	Research Methods	COMP								✓							✓				✓			✓				✓	✓	✓
	FZ3122	Organic Synthetic Methods	COMP	✓			✓		✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓			✓							

