Programme Specification: Undergraduate

For students starting in Academic Year 2018/2019

1. Course Summary

Names of programme(s) and award title(s)	Master in Chemistry (MChem) Master in Chemistry (MChem) with International Year Master in Chemistry (MChem) with Industrial Placement Year (see Annex B for details)
Award type	Integrated Masters
Mode of study	Full time
Framework of Higher Education Qualification (FHEQ) level of final award	Level 7
Duration	4 years 5 years with International Year or Industrial Placement Year between years 2 and 3
Location of study	Keele University – main campus
Accreditation (if applicable)	'Master in Chemistry (MChem)' and 'Master in Chemistry (MChem) with International Year' are both fully accredited by the Royal Society of Chemistry. The newly introduced 'Master in Chemistry (MChem) with Industrial Placement Year' will be submitted for accreditation
Regulator	Office for Students (OfS)
Tuition Fees	**UK/EU students:** Fee for 2018/19 is £9,250* **International students:** Fee for 2018/19 is £15,480** The fee for the international year abroad is calculated at 15% of the standard year fee The fee for the industrial placement year is calculated at 20% of the standard year fee
Additional Costs	Refer to section 18

How this information might change: *Please read the important information at http://www.keele.ac.uk/student-agreement/. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.*

2. What is an Integrated Masters programme?

Integrated master's awards - which are common in science, mathematics and engineering - are delivered through a programme that combines study at the level of a bachelor's degree with honours with study at

** These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at http://www.keele.ac.uk/studentfunding/tuitionfees/*

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master's level. As such, a student graduates with a master's degree after a single four-year programme of study. The Integrated Masters programme described in this document builds upon the three year Single Honours programme by adding a fourth year in which students study modules in Chemistry at an advanced level.

These specifications refer solely to the MChem route which requires a minimum of 360 credits in Chemistry. Students seeking further information on BSc Honours routes involving Chemistry are advised to consult the relevant programme specifications.

Students studying a 2nd subject in 1st and 2nd year are referred to as being on the Combined Honours (CH) Route. Students studying only Chemistry are referred to as being on the Single Honours (SH) Route.

Note: For clarity, this document refers to each level of study by its FHEQ level. Year 1 corresponds to Level 4, Year 2 to Level 5, Year 3 to Level 6 and Year 4 to Level 7.

FHEQ Level	Combined Honours Route	Single Honours Route	International Year	Industrial Placement Year
4	60 credits Chemistry	90 credits Chemistry	Follow either the combined honours or single honours route	Follow either the combined honours or single honours route
	60 credits Subject X	30 credits Electives		
5	105 – 120 credits Chemistry	105 – 120 credits Chemistry	105 – 120 credits Chemistry	105 – 120 credits Chemistry
	0 – 15 credits Electives	0 – 15 credits Electives	0 – 15 credits Electives	0 – 15 credits Electives
International Year			Equivalent of 120 credits, Pass/Fail	
Placement Year				Equivalent of 120 credits, Pass/Fail
6	120 credits Chemistry	120 credits Chemistry	120 credits Chemistry	120 credits Chemistry
7	120 credits Chemistry	120 credits Chemistry	120 credits Chemistry	120 credits Chemistry
Total	405-420 credits Chemistry 60 credits Subject X 0-15 credits Electives	435 – 450 credits Chemistry 30 – 45 credits Electives	405-450 credits Chemistry 60 credits Subject X 0-45 credits Electives	405-450 credits Chemistry 60 credits Subject X 0-45 credits Electives
Degree	MChem Chemistry	MChem Chemistry	MChem Chemistry with International Year	MChem Chemistry with Industrial Placement Year

At Level 4, students may select to study Chemistry AND Subject X, or pursue the Single Honours Chemistry Route. From Level 5 onwards, all students must study Single Honours Chemistry. You must elect to transfer from Combined Honours Chemistry or Medicinal Chemistry Courses to MChem Chemistry by the beginning of Level 5 study; you may not transfer from a Combined Honours course after this point.

Progression to the MChem programme requires an average of at least 50% at Level 5. If you do not attain this average, you will be transferred automatically to the appropriate BSc Honours degree for Level 6. [1]

[1] *(International students only)* Due to the UK Home Office Visa restrictions, students who enrol on the MChem programme are not able to transfer to the BSc Chemistry level at any point during the course apart from at the level 6 boards, where a student would exit and complete with an award of BSc Computer Science. If an international student wishes or is required to transfer to the BSc Chemistry they will need to apply for a new Visa from outside the UK at their own cost before the switch could be completed. Students who find themselves in these circumstances will need to speak to International Student Support (Student Services Centre) to go over the consequences of the transfer and the timings of a new Visa application from outside the UK.

3. Overview of the Programme

Chemistry is the central science, disciplined in experimental approach, highly creative in thinking, and life-enhancing in impact. The contribution of chemistry to our modern world ranges from advanced materials in gadgets, and high-tech materials used on the International Space Station, to life-saving drugs that are essential to modern medicine. The wide diversity of chemistry is reflected in teaching and research at Keele University.

In first and second year, lectures cover core material for study, introducing you to concepts that are developed in workshops and laboratory classes. Assessment is through a combination of exams and coursework including reports, presentations, and laboratory diaries. You will receive comprehensive feedback on assessed work in a variety of formats including written, audio, and face-to-face methods.

In third and fourth year, lectures and seminars cover research-focused material. Assessment includes exams and coursework designed to further develop information retrieval and critical thinking skills. Third year project work is in the format of a research project module which is assessed through the evaluation of the laboratory diary, an oral examination and writing of a scientific paper. In the fourth year, you will undertake an extended 60 credit research project over both semesters to be assessed by dissertation, poster presentation and oral examination. You have access throughout your degree to excellent laboratory facilities that are exceptionally well equipped with computational facilities and chemical instrumentation, much of which is research grade. The structure of the programme is designed to enable you to enhance your employability through the development of problem- solving, presentational and communication skills as well as developing your research skills and your capacity to learn independently. If you take advantage of the full range of opportunities the programme offers, you will have acquired the knowledge and skills to present yourself with confidence in pursuit of your chosen career in a competitive world. The MChem programme goes further than our BSc programmes in offering you the opportunity to develop your subject specific knowledge, and research, problem solving and communication skills. Through choice of the research project and selection of topics within modules, you will have the opportunity to tailor your final year to suit your interests and aspirations.

4. Aims of the Programme

The broad aims of the programme are to:

- equip you with depth and breadth of chemistry knowledge,
- develop a wide range of laboratory and analytical skills,
- develop enhanced problem solving, research and communication skills.

5. What you will learn

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding
- Subject specific skills
- Intellectual skills
- Key or transferable skills (including employability skills)

Subject knowledge and understanding

Successful students will be able to demonstrate:

- knowledge of the major aspects of chemical terminology and vocabulary
- knowledge and understanding of fundamental physicochemical principles
- knowledge of a range of inorganic and organic materials
- understanding of general synthetic pathways, including related isolation, purification and characterisation techniques

- awareness of issues within chemistry that overlap with other related disciplines
- knowledge of selected aspects of chemistry at the forefront of the discipline
- knowledge of aspects of chemical science research methods and peer-reviewed chemical science literature
- the ability to adapt and apply methodology to the solution of unfamiliar problems
- the ability to design and plan experiments through selection of appropriate techniques and procedures, and to evaluate critically the outcomes of those experiments

Subject specific skills

Successful students will be able to:

- demonstrate skills in the safe-handling of chemical materials, taking into account their physical and chemical properties including any specific hazards associated with their use
- conduct risk assessments
- conduct documented laboratory procedures in synthetic and analytical work, in relation to both inorganic and organic systems
- monitor, by observation and measurement, chemical properties, events or changes, with systematic and reliable recording and documentation thereof
- operate standard chemical instrumentation
- interpret and explain the limits of accuracy of their own experimental data in terms of significance and underlying theory
- demonstrate the ability to work independently, identify areas for further training and be self-critical in the evaluation of risks, experimental procedures and outcomes
- demonstrate the ability to assimilate, evaluate and present research results objectively
- demonstrate the skills required to undertake a research project reporting outcomes that are potentially publishable (in a peer-reviewed publication)

Intellectual skills

Successful students will be able to:

- demonstrate knowledge and understanding of essential chemistry-related facts, concepts, principles and theories
- apply such knowledge and understanding to the solution of qualitative and quantitative problems, both familiar and unfamiliar
- recognise and analyse problems and plan strategies for their solution
- evaluate, interpret and synthesise chemical information and data
- carry out practical application of theory using computer software and models
- communicate scientific material and arguments
- use information technology (IT) to manipulate and present chemical information and data
- demonstrate self-direction, initiative and originality when solving problems
- demonstrate the ability to make decisions in complex situations

Key or transferable skills (including employability skills)

Successful students will be able to:

- communicate information, ideas, problems, and solutions to both specialist and non-specialist audiences orally and in writing
- demonstrate problem-solving skills, relating to qualitative and quantitative information
- demonstrate numeracy and mathematical skills, including such aspects as error analysis, order-of-magnitude estimations, correct use of units and modes of data presentation
- retrieve and cite information, in relation to primary and secondary information sources, including retrieval of information through online computer searches
- demonstrate skills in the use of information technology for presenting information and data
- interact with other people and engage in team-working, time management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working
- show development of skills and awareness necessary to seek out opportunities to undertake appropriate further training of a professional nature
- demonstrate the ability to communicate and interact with professionals and work in multi-skilled teams
- show development of independent learning skills required for continued professional development

Additional learning outcomes specific to MChem Chemistry with International Year

Successful students will be able to:

- Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
- Discuss the benefits and challenges of global citizenship and internationalisation
- Explain how their perspective on their academic discipline has been influenced by locating it within an international setting
- Design, plan and critically evaluate practical investigation, record relevant information accurately and systematically and be able to reflect upon the data in critical manner
- Develop, synthesize and apply fundamental principles and solve specific problems in the context of selected scientific discipline.

Additional learning outcomes specific to MChem Chemistry with Industrial Placement Year

Successful students will be able to:

- Apply the chemical theories and laboratory skills learnt to real situations in the industrial workplace to design, plan, risk asses, and critically evaluate practical investigations
- Develop key professional skills in the accurate documentation of information; the analysis of chemical data; and the planning and safe operation of chemical processes
- Develop employability skills in the presentation and communication of data; the writing of reports; and the ability to work effectively, individually, and as part of a team
- Explain how their perspective on chemistry has been influenced by working within an industrial setting

Keele Graduate attributes

Engagement with this programme will enable you to develop your intellectual, personal and professional capabilities. At Keele, we call these our ten Graduate Attributes and they include independent thinking, synthesizing information, creative problem solving, communicating clearly, and appreciating the social, environmental and global implications of your studies and activities. Our educational programme and learning environment is designed to help you to become a well-rounded graduate who is capable of making a positive

and valued contribution in a complex and rapidly changing world, whichever spheres of life you engage in after your studies are completed.

Further information about the Keele Graduate Attributes can be found here: http://www.keele.ac.uk/journey/

6. How is the Programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- Lectures, lecture breaks and self-tests
- Interactive personal response systems
- Screencasts
- Recorded lectures
- Tablet PCs
- Demonstrations
- Detailed personalised and generic written and face-to-face feedback
- Electronic submission and return of marked coursework (with feedback)
- Audio feedback
- Screencast feedback
- Pre-laboratory and post-laboratory exercises
- Laboratory classes
- Research projects
- Problem classes and workshops
- Problem-based and context-based activities
- IT instruction (spread sheets, word-processing, chemical structure drawing, databases, textbook resources, information retrieval and literature searching)
- Group work
- Self and peer-assessment for learning
- Information literacy activities
- Computer-aided learning (simulations and animations, online activities and exercises)
- Case studies
- Chemical Sciences Seminar Series
- Use of e-learning/the Keele Learning Environment (KLE)

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Personal Tutors or module lecturers on a one-to-one basis.

7. Teaching Staff

A dynamic group of staff with a broad range of expertise teach on the programme and bring a wealth of experience acquired through fundamental and applied research across a diverse range of areas. Some current staff members are internationally recognised leaders in their field and manage research groups comprising postgraduate research students and postdoctoral researchers, some of whom contribute to the teaching on the programme. Reflecting the diverse range of research expertise, some staff members also contribute to the Forensic Science, and Environmental Science programmes at Keele. Many current teaching staff hold, or are working towards an accredited Higher Education Teaching qualification and many are Fellows of the Higher Education Academy (FHEA), the professional body for teachers in Higher Education. A number of the teaching staff have established a national reputation for excellence in teaching and learning and have been recognised for their innovation in teaching through university and national teaching excellence awards, and the attraction of funding for teaching innovation projects.

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

8. What is the Structure of the Programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from course to course, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April.

Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are three types of module delivered as part of your programme. They are:

- Compulsory modules – a module that you are required to study on this course;
- Optional modules – these allow you some limited choice of what to study from a list of modules;
- Elective modules – a free choice of modules that count towards the overall credit requirement but not the number of subject-related credits.

A summary of the credit requirements per year is as follows, with a minimum of 90 subject credits[1] (compulsory plus optional) required for each year.

Year	Compulsory	Optional		Electives	
		Min	Max	Min	Max
1	60-90[1]	0	0	30	30
2	90	15	30	0	15
3	90	30	30	0	0
4	120	0	0	0	0

[1] *Students may study combined honours in the first year and elect to switch after year 1. Students on this route will study 60 compulsory credits of chemistry/medicinal chemistry and 60 compulsory credits of a second subject.*

It is possible to transfer onto the following courses from MChem Chemistry. You may elect to transfer from Combined Honours Chemistry Courses to Single Honours Chemistry at any point up to the first week of Semester 1 of Year 2.

A summary of the MChem Chemistry with International Year programme is provided in Annex A.

Degree Title	Duration	Transfer Deadline
BSc Chemistry (Single Honours)	3 years	Transfer by week 1 of semester 1 of year 3
MChem Chemistry with International	4 years	Transfer by week 1 of semester 1 of year 2

Module lists

Year 1 (Level 4)

There are two compulsory 30-credit modules taken by all chemistry students at Level 4. Students on the Single Honours (SH) pathway will select two electives and take two additional core modules, with approximately 4 hours per week timetabled contact time.

Whilst laying the foundations of the principles and vocabulary of Chemistry, you will be challenged to question knowledge and the nature of knowledge when you start to encounter problems that have more than one answer or interpretation. You will be exposed to experimental evidence from a variety of sources and start to

learn how such evidence supports, undermines or otherwise, the theoretical models and ideas upon which the subject of Chemistry is built. The practical classes emphasise development of core practical skills through hands-on experience of key techniques and procedures, as well as skills in laboratory safety, maintaining a laboratory diary, observation, information retrieval, IT skills, scientific writing and reporting in a variety of formats.

Combined Honours Chemistry/Medicinal Chemistry route
60 credits of Chemistry, 60 credits of Subject X

Compulsory modules	Credits	Optional modules	Credits
Chemical Structure and Reactivity	30	None	
Practical and Professional Chemistry Skills	30		

Single Honours Chemistry route
90 credits of Chemistry, 30 credits of Electives

Compulsory modules	Credits	Optional modules	Credits
Chemical Structure and Reactivity	30	None	
Practical and Professional Chemistry Skills	30		
Sustainable Chemistry	30		

Year 2 (Level 5)

Students will take 4 or 5 chemistry modules with the option to select an elective. Three 30-credit modules will be core and the 15-credit remaining chemistry module(s) will be selected from a choice of three optional modules. Entry to MChem Year 3/Level 6 requires 50% average across all modules, irrespective of the subject studied.

In Year 2 the knowledge and skills acquired in Year 1 are developed with an increasing emphasis on the need to integrate knowledge and critically evaluate experimental evidence in solving theoretical and practical problems. In practical classes, new practical skills are developed and an increasing emphasis is placed on critical evaluation of experimental design and the analysis of complex data from multiple sources, including computational theoretical calculations and the scientific peer-reviewed literature. Sophisticated analytical techniques are introduced and applied to the investigation of a variety of problems, whilst communication skills are developed to include skills in oral presentation.

Compulsory modules	Credits	Optional modules[1]	Credits
Molecular Chemistry and Reactions	30	Industrial Chemistry	15
Spectroscopy and Analysis	30	Medicinal & Biological Chemistry 1	15
Physical and Structural Chemistry	30	Sustainable Chemistry[2]	15

[1] – Students must select at least one optional module, and may take an elective module.
[2] – Sustainable Chemistry (CHE-20032) is available as an option module to those students who did not take it in Year 1 (CHE-10051).

Year 3 (Level 6)

Entry to level 6 of the MChem programme requires an average of 50% in all modules at level 5. In semester 1 you will take three compulsory modules and one optional module. In semester 2 you will study two compulsory modules and select one optional module. There is also a 15-credit research project that lasts the full year.

In Year 3, increasingly sophisticated theories and ideas are introduced which require you to draw upon, integrate and extend the fundamental chemical principles introduced during Years 1 and 2. The breadth of material covered is diverse and encompasses research-informed topics at the forefront of the discipline in areas such as analytical chemistry, medicinal and biological chemistry, green chemistry and many others.

Compulsory modules	Credits	Optional modules	Credits

Advanced Organic Chemistry	15	Group 1 (Semester One): Medicinal and Biological Chemistry 2[2] Materials Chemistry & Catalysis	 15 15
Chemical Kinetics, Photochemistry & Inorganic reaction Mechanisms	15	Group 2 (Semester Two): Topics in Chemistry Topics in Medicinal Chemistry	 15 15
Chemistry/Medicinal Chemistry Research Project	15		
Synoptic Topics in Chemistry	15		
Advanced Chemical Analysis	15		
Inorganic, Physical & Solid State Chemistry	15		

[1] Students must pick one module from Group 1 and one module from Group 2.
[2] Pre-requisite of Medicinal & Biological Chemistry 1.

Year 4 (Level 7)

Following satisfactory progression from Year 3/Level 6, you will take two taught modules in semester 1. You will carry out an extended 60-credit Research Project (selected from a wide variety of research projects on offer), which places increased emphasis on your ability to work independently and to design and critically evaluate practical investigations and the peer-reviewed scientific literature. This will be carried out through semester 1 and 2, but more intensively in semester 2. You will carry out an extensive literature review in the broad area of your project in semester 1. Semester 2 will allow you to focus more on your project as you will have one taught module. The three taught modules are designed to develop depth and breadth of understanding across a wide range of topics.

Compulsory modules	**Credits**	**Optional modules**	**Credits**
MChem Research Project	60	None	
MChem Research Training	15		
Applied Chemistry Topics	30		
Research Chemistry Topics	15		

For further information on the content of modules currently offered, including the list of elective modules, please visit: www.keele.ac.uk/recordsandexams/az

Learning Outcomes

The table below sets out what students learn in each year of the Programme, the modules in which that learning takes place, and the main ways in which students are assessed on their learning.

Year 1 (Level 4)

Subject Knowledge and Understanding		
Learning Outcome *Successful students will have:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Knowledge of the major aspects of chemical terminology and vocabulary	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Coursework
Knowledge and understanding of fundamental physicochemical	Chemical Structure and Reactivity, Practical and Professional	Exam, Coursework

principles.	Chemistry Skills	
Knowledge of a range of inorganic and organic materials	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills	Exam, Coursework
Understanding of general synthetic pathways, including related isolation, purification and characterisation techniques	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills	Exam, Laboratory Assessment
Awareness of issues within chemistry that overlap with other related disciplines.	Chemical Structure and Reactivity, Sustainable Chemistry	Essay, Group Project, Presentation
Knowledge of selected aspects of chemistry at the forefront of the discipline.	Sustainable Chemistry	Group Project, Online Tasks, Coursework
Knowledge of aspects of chemical science research methods and peer-reviewed chemical science literature.	Sustainable Chemistry	Group Project, Online Tasks, Presentation, Coursework

Subject Specific Skills		
Learning Outcome *Successful students will be able to:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Demonstrate skills in the safe-handling of chemical materials, taking into account their physical and chemical properties including any specific hazards associated with their use	Practical and Professional Chemistry Skills	Practical Exam, Practical Assessments, Laboratory Diary
Conduct risk assessments	Practical and Professional Chemistry Skills	Practical Exam, Practical Assessments, Laboratory Diary
Conduct documented laboratory procedures in synthetic and analytical work, in relation to both inorganic and organic systems	Practical and Professional Chemistry Skills	Practical Exam, Practical Assessments, Laboratory Diary
Monitor, by observation and measurement, chemical properties, events or changes, with systematic and reliable recording and documentation thereof	Practical and Professional Chemistry Skills	Practical Exam, Practical Assessments, Laboratory Diary
Operate standard chemical instrumentation	Practical and Professional Chemistry Skills	Practical Exam, Practical Assessments, Laboratory Diary
Interpret and explain the limits of accuracy of their own experimental data in terms of significance and underlying theory	Practical and Professional Chemistry Skills	Practical Exam, Practical Assessments, Laboratory Diary
Demonstrate knowledge and understanding of essential	Chemical Structure and Reactivity, Practical and Professional	Exam, Coursework

chemistry-related facts, concepts, principles and theories	Chemistry Skills, Sustainable Chemistry	
Apply such knowledge and understanding to the solution of qualitative and quantitative problems, both familiar and unfamiliar	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Coursework
Evaluate, interpret and synthesise chemical information and data	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Laboratory Assessment
Carry out practical application of theory using computer software and models	Practical and Professional Chemistry Skills	Group Project, Presentation
Use information technology (IT) to manipulate and present chemical information and data	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Presentation, Poster, Laboratory Report, Coursework

Key or Transferable Skills (graduate attributes)		
Learning Outcome *Successful students will be able to:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Recognise and analyse problems and plan strategies for their solution.	Practical and Professional Chemistry Skills	Exam, Coursework
Communicate scientific material and arguments.	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Coursework, Presentation, Poster
Communicate information, ideas, problems, and solutions to both specialist and non- specialist audiences orally and in writing	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Coursework
Demonstrate problem- solving skills, relating to qualitative and quantitative information	Practical and Professional Chemistry Skills	Exam, Coursework
Demonstrate numeracy and mathematical skills, including such aspects as error analysis, order-of-magnitude estimations, correct use of units and modes of data presentation	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Coursework
Retrieve and cite information, in relation to primary and secondary information sources, including retrieval of information through online computer searches	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Coursework

Demonstrate skills in the use of information technology for presenting information and data	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Coursework
Interact with other people and engage in team-working, time management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working	Chemical Structure and Reactivity, Practical and Professional Chemistry Skills, Sustainable Chemistry	Exam, Coursework

Year 2 (Level 5)

Subject Knowledge and Understanding		
Learning Outcome *Successful students will have:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Knowledge of the major aspects of chemical terminology and vocabulary	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Exam, Coursework
Knowledge and understanding of fundamental physicochemical principles.	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1,	Exam, Coursework
Knowledge of a range of inorganic and organic materials	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry	Exam, Coursework
Understanding of general synthetic pathways, including related isolation, purification and characterisation techniques	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Medicinal and Biological Chemistry 1,	Exam, Class Test, Laboratory Assessment
Awareness of issues within chemistry that overlap with other related disciplines.	Molecular Chemistry and Reactions, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Essay, Group Project, Presentation
Knowledge of selected aspects of chemistry at the forefront of the discipline.	Molecular Chemistry and Reactions, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Group Project, Online Tasks, Coursework
Knowledge of aspects of chemical science research methods and peer-reviewed chemical science literature.	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry	Group Project, Online Tasks, Presentation, Coursework

	1, Sustainable Chemistry	

Subject Specific Skills		
Learning Outcome *Successful students will be able to:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Demonstrate skills in the safe-handling of chemical materials, taking into account their physical and chemical properties including any specific hazards associated with their use	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Practical Assessments, Laboratory Diary
Conduct risk assessments	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Practical Assessments, Laboratory Diary
Conduct documented laboratory procedures in synthetic and analytical work, in relation to both inorganic and organic systems	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Practical Assessments, Laboratory Diary
Monitor, by observation and measurement, chemical properties, events or changes, with systematic and reliable recording and documentation thereof	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Practical Assessments, Laboratory Diary
Operate standard chemical instrumentation	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Practical Assessments, Laboratory Diary
Interpret and explain the limits of accuracy of their own experimental data in terms of significance and underlying theory	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Practical Assessments, Laboratory Diary
Demonstrate knowledge and understanding of essential chemistry-related facts, concepts, principles and theories	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Exam, Coursework
Apply such knowledge and understanding to the solution of qualitative and quantitative problems, both familiar and unfamiliar	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Exam, Coursework
Evaluate, interpret and synthesise	Molecular Chemistry and	Exam, Laboratory Assessment

chemical information and data	Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	
Carry out practical application of theory using computer software and models	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Group Project, Presentation
Use information technology (IT) to manipulate and present chemical information and data	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Presentation, Poster, Laboratory Report, Coursework

Key or Transferable Skills (graduate attributes)		
Learning Outcome *Successful students will be able to:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Recognise and analyse problems and plan strategies for their solution.	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1	Exam, Coursework
Communicate scientific material and arguments.	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Exam, Coursework, Presentation, Poster
Communicate information, ideas, problems, and solutions to both specialist and non- specialist audiences orally and in writing	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Exam, Coursework
Demonstrate problem- solving skills, relating to qualitative and quantitative information	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Exam, Coursework
Demonstrate numeracy and mathematical skills, including such aspects as error analysis, order-of-magnitude estimations, correct use of units and modes of data presentation	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Medicinal and Biological Chemistry 1	Exam, Coursework

Retrieve and cite information, in relation to primary and secondary information sources, including retrieval of information through online computer searches	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Exam, Coursework
Demonstrate skills in the use of information technology for presenting information and data	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Exam, Coursework
Interact with other people and engage in team-working, time management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working	Molecular Chemistry and Reactions, Spectroscopy and Analysis, Physical and Structural Chemistry, Industrial Chemistry, Medicinal and Biological Chemistry 1, Sustainable Chemistry	Exam, Coursework
Show development of skills and awareness necessary to seek out opportunities to undertake appropriate further training of a professional nature;	Spectroscopy and analysis	CV

Year 3 (Level 6)

Subject Knowledge and Understanding		
Learning Outcome *Successful students will have:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Knowledge of the major aspects of chemical terminology and vocabulary	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2	Exam, Coursework
Knowledge and understanding of fundamental physicochemical principles.	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2	Exam, Coursework
Knowledge of a range of inorganic	Advanced Chemical Analysis, Topics	Exam, Coursework

and organic materials	in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry,	
Understanding of general synthetic pathways, including related isolation, purification and characterisation techniques	Advanced Organic Chemistry, Inorganic, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2	Exam, Coursework
Awareness of issues within chemistry that overlap with other related disciplines.	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Medicinal & Biological Chemistry 2	Exam, Coursework
Knowledge of selected aspects of chemistry at the forefront of the discipline.	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2	Exam, Coursework, Lab Diary, Scientific Paper, Oral Examination, Oral Presentation
Knowledge of aspects of chemical science research methods and peer-reviewed chemical science literature.	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	Coursework, Lab Diary, Scientific Paper, Oral Examination
The ability to adapt and apply methodology to the solution of unfamiliar problems	Synoptic Topics in Chemistry, Chemistry/Medicinal Chemistry Research Project	Exam, Lab Diary, Scientific Paper, Oral Examination
The ability to design and plan experiments through selection of appropriate techniques and procedures, and to evaluate critically the outcomes of those experiments	Chemistry/Medicinal Chemistry Research Project	Lab Diary, Scientific Paper, Oral Examination

Subject Specific Skills		
Learning Outcome *Successful students will be able to:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Demonstrate skills in the safe-handling of chemical materials, taking into account their physical and chemical properties including any specific hazards associated with their use	Advanced Chemical Analysis, Chemistry/Medicinal Chemistry Research Project	Practical Assessments, Laboratory Diary
Conduct risk assessments	Advanced Chemical Analysis, Chemistry/Medicinal Chemistry Research Project	Practical Assessments, Laboratory Diary
Conduct documented laboratory procedures in synthetic and analytical work, in relation to both inorganic and organic systems	Advanced Chemical Analysis, Chemistry/Medicinal Chemistry Research Project	Practical Assessments, Laboratory Diary
Monitor, by observation and measurement, chemical properties, events or changes, with systematic and reliable recording and documentation thereof	Advanced Chemical Analysis, Chemistry/Medicinal Chemistry Research Project	Practical Assessments, Laboratory Diary
Operate standard chemical instrumentation	Advanced Chemical Analysis, Chemistry/Medicinal Chemistry Research Project	Practical Assessments, Laboratory Diary
Interpret and explain the limits of accuracy of their own experimental data in terms of significance and underlying theory	Advanced Chemical Analysis, Chemistry/Medicinal Chemistry Research Project	Practical Assessments, Laboratory Diary, Scientific Paper
Demonstrate knowledge and understanding of essential chemistry-related facts, concepts, principles and theories	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2	Exam, Coursework
Apply such knowledge and understanding to the solution of qualitative and quantitative problems, both familiar and unfamiliar	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2	Exam, Coursework

Evaluate, interpret and synthesise chemical information and data	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	Exam, Laboratory Assessment
Carry out practical application of theory using computer software and models	Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Inorganic, Physical & Solid State Chemistry, Chemistry/Medicinal Chemistry Research Project	Group Project, Presentation
Use information technology (IT) to manipulate and present chemical information and data	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	Presentation, Poster, Laboratory Report, Coursework, Oral Examination

Key or Transferable Skills (graduate attributes)		
Learning Outcome *Successful students will be able to:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Recognise and analyse problems and plan strategies for their solution.	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	Exam, Coursework, Scientific Paper
Communicate scientific material and arguments.	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry,	Exam, Coursework, Presentation, Poster, Oral Presentation, Scientific Paper

	Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	
Communicate information, ideas, problems, and solutions to both specialist and non- specialist audiences orally and in writing	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	Exam, Coursework, Oral Presentation, Scientific Paper, Oral Examination
Demonstrate problem- solving skills, relating to qualitative and quantitative information	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	Exam, Coursework, Lab Diary, Scientific Paper
Demonstrate numeracy and mathematical skills, including such aspects as error analysis, order-of-magnitude estimations, correct use of units and modes of data presentation	Advanced Chemical Analysis, Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	Exam, Coursework
Retrieve and cite information, in relation to primary and secondary information sources, including retrieval of information through online computer searches	Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Advanced Organic Chemistry, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal	Exam, Coursework, Scientific Paper

	Chemistry Research Project	
Demonstrate skills in the use of information technology for presenting information and data	Topics in Chemistry, Chemical Kinetics, Photochemistry & Inorganic Reaction Mechanisms, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Medicinal & Biological Chemistry 2, Chemistry/Medicinal Chemistry Research Project	Exam, Coursework
Interact with other people and engage in team-working, time management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working	Advanced Chemical Analysis, Inorganic, Physical & Solid State Chemistry, Materials Chemistry & Catalysis, Topics in Medicinal Chemistry, Synoptic Topics in Chemistry, Chemistry/Medicinal Chemistry Research Project	Exam, Coursework, Lab Diary, Scientific Paper
Show development of skills and awareness necessary to seek out opportunities to undertake appropriate further training of a professional nature;	Chemistry/Medicinal Chemistry Research Project	Lab Diary
Demonstrate self- direction, initiative and originality when solving problems.	Chemistry/Medicinal Chemistry Research Project	Lab Diary, Scientific Paper Oral Examination

Year 4 (Level 7)

Subject Knowledge and Understanding		
Learning Outcome *Successful students will have:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Knowledge of the major aspects of chemical terminology and vocabulary	MChem Research Training, Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Knowledge and understanding of fundamental physicochemical principles.	Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Knowledge of a range of inorganic and organic materials	Applied Chemistry Topics, Research Chemistry Topics,	Exam, Coursework,
Understanding of general synthetic pathways, including related isolation, purification and characterisation techniques	Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Awareness of issues within chemistry that overlap with other related disciplines.	Applied Chemistry Topics, Research Chemistry Topics	Exam, Coursework

Knowledge of selected aspects of chemistry at the forefront of the discipline.	Applied Chemistry Topics, Research Chemistry Topics	Exam, Coursework
Knowledge of aspects of chemical science research methods and peer-reviewed chemical science literature.	MChem Research Training, Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
The ability to adapt and apply methodology to the solution of unfamiliar problems	MChem Research Training, Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
The ability to design and plan experiments through selection of appropriate techniques and procedures, and to evaluate critically the outcomes of those experiments	MChem Research Project	Dissertation, Oral Examination, Poster

Subject Specific Skills		
Learning Outcome *Successful students will be able to:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Demonstrate skills in the safe-handling of chemical materials, taking into account their physical and chemical properties including any specific hazards associated with their use	MChem Research Project	Lab Diary, Oral Examination
Conduct risk assessments	MChem Research Project	Lab Diary, Oral Examination
Conduct documented laboratory procedures in synthetic and analytical work, in relation to both inorganic and organic systems	MChem Research Project	Lab Diary, Dissertation, Oral Examination
Monitor, by observation and measurement, chemical properties, events or changes, with systematic and reliable recording and documentation thereof	MChem Research Project	Lab Diary, Dissertation, Oral Examination
Operate standard chemical instrumentation	MChem Research Project	Lab Diary, Dissertation, Oral Examination
Interpret and explain the limits of accuracy of their own experimental data in terms of significance and underlying theory	MChem Research Project	Lab Diary, Dissertation, Oral Examination, Poster
Demonstrate the ability to work independently, identify areas for further training and be self- critical in the evaluation of risks, experimental procedures and	MChem Research Training, MChem Research Project	Coursework, Lab Diary, Dissertation, Oral Examination

outcomes		
Demonstrate the ability to assimilate, evaluate and present research results objectively	MChem Research Training, MChem Research Project	Coursework, Lab Diary, Dissertation, Oral Examination
Demonstrate the skills required to undertake a research project reporting outcomes that are potentially publishable (in a peer-reviewed publication)	MChem Research Training, MChem Research Project	Coursework, Lab Diary, Dissertation, Oral Examination
Apply such knowledge and understanding to the solution of qualitative and quantitative problems, both familiar and unfamiliar	Chemistry Topics, Research Chemistry Topics	Exam, Coursework
Evaluate, interpret and synthesise chemical information and data	MChem Research Training, Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Carry out practical application of theory using computer software and models	Applied Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Use information technology (IT) to manipulate and present chemical information and data	Applied Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster

Key or Transferable Skills (graduate attributes)		
Learning Outcome *Successful students will be able to:*	**Module in which this is delivered**	**Principal forms of assessment (of the Level Outcome) used**
Recognise and analyse problems and plan strategies for their solution.	Applied Chemistry Topics, Research Chemistry Topics	Exam, Coursework
Communicate scientific material and arguments.	MChem Research Training, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Communicate information, ideas, problems, and solutions to both specialist and non- specialist audiences orally and in writing	Applied Chemistry Topics, Research Chemistry Topics	Coursework, Dissertation, Oral Examination, Poster
Demonstrate problem- solving skills, relating to qualitative and quantitative information	Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Demonstrate numeracy and mathematical skills, including such aspects as error analysis, order-of-magnitude estimations, correct use of units and modes of data presentation	Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Retrieve and cite information, in	MChem Research Training, Applied	Exam, Coursework, Dissertation,

relation to primary and secondary information sources, including retrieval of information through online computer searches	Chemistry Topics, MChem Research Project	Oral Examination, Poster
Demonstrate skills in the use of information technology for presenting information and data	MChem Research Training, Applied Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Interact with other people and engage in team-working, time management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working	MChem Research Training, MChem Research Project	Coursework, Dissertation, Oral Examination, Poster
Demonstrate the ability to make decisions in complex situations	MChem Research Training, Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Show development of skills and awareness necessary to seek out opportunities to undertake appropriate further training of a professional nature;	MChem Research Training, Applied Chemistry Topics, Research Chemistry Topics, MChem Research Project	Exam, Coursework, Dissertation, Oral Examination, Poster
Demonstrate self- direction, initiative and originality when solving problems.	MChem Research Project	Dissertation, Oral Examination, Poster

9. Final and intermediate awards

Credits required for each level of academic award are as follows:

Master's Degree	480 credits	You will require at least 120 credits at levels 4, 5, 6 and 7. You must accumulate at least 360 credits in Chemistry (out of 480 credits overall) to graduate with a named single honours degree in Chemistry.
Honours Degree	360 credits	You will require at least 120 credits at levels 4, 5 and 6 You must accumulate at least 270 credits in Chemistry (out of 360 credits overall), with at least 90 credits in each of the three years of study, to graduate with a named single honours degree in Chemistry.
Diploma in Higher Education	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
Certificate in Higher Education	120 credits	You will require at least 120 credits at level 4 or higher

MChem Chemistry with International Year: in addition to the above students must pass a module covering the international year in order to graduate with a named degree in Chemistry with international year. Students who

do not complete, or fail the international year, will be transferred to the four-year MChem Chemistry programme.

MChem Chemistry with Industrial Placement Year: in addition to the above students must pass a non-credit bearing module covering the placement year in order to graduate with a named degree in Chemistry with industrial placement year. Students who do not complete, or fail the placement year, will be transferred to the four-year Chemistry programme.

10. How is the Programme assessed?

The wide variety of assessment methods used within Chemistry at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used within Chemistry:

- **Unseen written examinations** test students' knowledge and understanding of the subject. Examinations may consist of long or short answer questions

- **Pre-laboratory exercises** - structured exercises designed to increase students understanding of the theory and techniques required by a specific laboratory practical and may require the student to read the lab script, watch short videos of techniques, perform calculations, answer short questions and look up information

- **Laboratory reports** are structured proformas and full lab reports are formal summaries of work carried out in the laboratory and test students' understanding of the practical aspects of the programme and develop the skills necessary to enable students to present and analyse their results.

- **Laboratory diaries** are a hand-written record of work carried out in laboratory sessions, maintained regularly and kept in accordance with laboratory diary checklists and guidelines provided in the laboratory script. Typically, a selection of experiments carried out in each module will be assessed at the end of the semester

- **Practical examinations** are a series of laboratory or computer based exercises designed to directly assess a student ability to perform a specific procedure or type of data analysis

- **Oral examinations** – students answer questions posed by members of staff on a specific topic such as a laboratory experiment, item of coursework, or a research project

- **IT assignments and computer-based exercises (e.g. spreadsheets exercises)** – various activities designed to assess students' ability to use software to retrieve, analyse and present scientific data in a variety of formats

- **Class tests** taken either conventionally or online via the Keele Learning Environment (KLE) assess students' subject knowledge and their ability to apply it in a more structured and focused way

- **Information retrieval exercises** require students to locate and analyse information of different types from the internet, various databases, scientific publications and textbooks. The information is then presented in a prescribed written format

- **Research projects and reports** test student's knowledge of different research methodologies and the limits and provisional nature of knowledge. They also enable students to demonstrate their ability to formulate research questions and to answer them using appropriate methods

- **Research proposals** require students to develop an independent research project and think through theoretical problems surrounding methodology and practical concerns relating to, for example, availability of sample, financial restrictions, and time limits. This form of assessment is key to the development of independent research skills and a portfolio of employability skills

- **Oral and poster presentations and reports** assess individual students' subject knowledge and understanding. They also test their ability to work effectively as members of a team, to communicate what they know orally and visually, and to reflect on these processes as part of their own personal development

- **Video/screencast presentations** require students to produce a short video or screencast on a given topic and assess students' knowledge and understanding, and ability to communicate what they know orally and visually, and to reflect on these processes as part of their own personal development

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions.

11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year/stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity	Year 1 (Level 4)	Year 2 (Level 5)	Year 3 (Level 6)	Year 4 (Level 7)
Scheduled learning and teaching activities	32%	35%	16%	12%
Guided independent Study	68%	65%	84%	88%
Placements	0%	0%	0%	0%

12. Accreditation

'Master in Chemistry (MChem)' and 'Master in Chemistry (MChem) with International Year' are both fully accredited by the Royal Society of Chemistry. The newly introduced 'Master in Chemistry (MChem) with Industrial Placement Year' will be submitted for accreditation.

13. Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: http://www.keele.ac.uk/student-agreement/

A student who has completed a semester abroad will not normally be eligible to transfer onto the International Year option.

Chemistry Regulations

These regulations supplement the relevant University Academic Regulations which are to be found on the University Web-site and in the University Calendar.

In the event of a contradiction or other discrepancy between these regulations and University Academic Regulations, the University Academic Regulations shall be authoritative, unless approval has been given by Senate for a variation from the University Academic Regulations.

1. Details of the Award

(a) BSc Combined and Single Honours students will be eligible to transfer to the MChem at the end of Level 4 if they achieve an average of 50% in all modules.

(b) Any student who fails to satisfy the requirements for progression to Level 7 shall revert to BSc Honours Degree candidature and be considered for the award of an Honours Degree (BSc Chemistry) under the provisions of regulation 1A.

(International students only) Due to the UK Home Office Visa restrictions, students who enrol on the MChem programme are not able to transfer to the BSc Chemistry level at any point during the course apart from at the level 6 boards, where a student would exit and complete with an award of BSc Chemistry. If an international student wishes or is required to transfer to the BSc Chemistry they will need to apply for a new Visa from outside the UK at their own cost before the switch could be completed. Students who find themselves in these circumstances will need to speak to International Student Support (Student Services Centre) to go over the consequences of the transfer and the timings of a new Visa application from outside the UK.

(c) Any student who fails to satisfy the requirements for the award of a Master's degree shall revert to BSc Honours Degree candidature and be considered for an award as detailed in part (b) above, and be eligible for Royal Society of Chemistry accreditation.

(d) In accordance with Regulation 1F 11.3, condonement is available whereby credit will be awarded to a student for one or more modules with a mark between 30 and 39 at Levels 4*, 5* or 6* and between 40 and 49 at Level 7*. Condonement of up to 75 credits is allowable, but shall not exceed 30 such credits across Levels 4, 5, and 6, and no more than 30 credits at Level 7. [*excluding those classed as 'Qualified Fails'.]

2. Laboratory Classes

(a) Laboratory classes are compulsory and are an essential part in fulfilling the intended learning outcomes of modules of which they are part, and a requirement of Royal Society of Chemistry accreditation. Failure to attend a significant number (>50%) of the laboratory classes without good cause will result in failure of the module with no reassessment being offered.

(b) Further to the provisions of regulations 1A and 1F, any student failing to attend one laboratory class and unable to provide good cause for their absence in advance, or within 5 working days of their absence, will be issued with an informal academic warning. Thereafter warnings will be issued in line with School of Chemical and Physical Sciences policy. This is to ensure students understand the need to attend laboratory classes in order to fulfil the learning outcomes and to meet the requirements of accreditation.

(c) Any student failing to follow the health and safety guidelines in the undergraduate laboratory will be asked to leave. This may include inappropriate dress, refusal to follow reasonable requests of staff, or attending under the influence of alcohol or other substances. The student will not be permitted to make up the missed session.

(d) Further to the provision of Regulation 8, any student missing one laboratory class may self-certify their absence. In the event of missing multiple laboratory classes, an EC will be required and independent evidence may be requested for substantial absence. There is no opportunity to make up missed laboratory sessions due to timetable constraints and so the following concessions will be made available to the student:

i. the student may be given opportunity to submit assessed work based on an alternative laboratory session, in agreement with the module leader and year tutor;

ii. with the approval of the Discipline Board of Examiners, a small element of the laboratory assessment (up to 33%) may be disregarded with the final mark for the assessment being recalculated from the remaining elements.

3. Other Compulsory Classes

Various compulsory classes (including workshops, assessment introductions, team-based learning sessions, tutorials, class tests and feedback sessions), at which attendance is compulsory, form an essential part of the chemistry/medicinal chemistry teaching programme. Failure to attend these sessions will result in warnings being issued in line with School of Chemical and Physical Sciences policy. In addition, failure to attend a significant number (>50%) of these sessions without good cause may result in reassessment being denied.

4. Coursework Assessment

Failure to engage appropriately with a module's coursework assessment items without good cause (that is, by failing to submit more than 50% of coursework items) may result in reassessment being denied.

14. What are the typical admission requirements for the programme?

Subject	A-level	Subjects not included	International Baccalaureate	BTEC	Access to Higher Education Diploma	GCSE requirements
Chemistry (MChem)	ABC / BBB A level Chemistry at grade B or above. A Pass in Science Practical will be required if applicant is taking A level Chemistry (England) ** ** Science practical only required from applicants taking reformed A level Biology, Chemistry or Physics in England.	General Studies and Critical Thinking	32 points to include Higher Level Chemistry at 6 or above.	DDM You must have taken sufficient Chemistry units, please contact us for advice	Obtain Access to Higher Education Diploma with 30 Level 3 credits at Distinction and 15 Level 3 credits at Merit. You must also have taken sufficient Science credits, please contact us for advice.	Maths at C (or 4) English Language at C (or 4)

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University's Foundation Year Programme.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 6.0 or equivalent.

Please note: All non-native English speaking students are required to undertake a diagnostic English language assessment on arrival at Keele, to determine whether English language support may help them succeed with their studies. An English language module may be compulsory for some students during their first year at Keele.

Accreditation of Prior Learning (APL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here:
http://www.keele.ac.uk/qa/accreditationofpriorlearning/

15. How are students supported on the programme?

Personal Tutors: You are allocated a Personal Tutor for the duration of your studies as part of the University's Personal Tutor system and in accordance with the University Code of Practice on Personal Tutoring. The role of

the Personal Tutor is to meet formally with you periodically to discuss your progress and performance and to offer support and advice. You can make arrangements to see their Personal/Subject Tutor at any time.

Year Tutors: A year tutor is allocated to your class for every year of study and is responsible for monitoring attendance, discussing academic progress and assisting with exceptional circumstances and other issues that may be affecting your performance.

Use of e-learning/the Keele Learning Environment (KLE): All modules belonging to the Chemistry programmes are supported by learning resources that are accessible to students via the KLE.

Health and Safety: All students admitted to the programme receive detailed training on health and safety in the laboratory and are provided with a Safety Handbook, Safety Glasses and a Laboratory Coat. Other personal protective equipment will be provided if required.

Students with disabilities, medical conditions or dyslexia: Students admitted to the Chemistry degree programme with disabilities or medical problems are asked to disclose their condition to Student Services. Year tutors and module leaders are responsible for ensuring reasonable adjustments are made.

Support for Students during International Year or Semester Abroad: Our study abroad tutor will maintain regular contact with students studying abroad. This will include a minimum of monthly emails to check on your progress, bimonthly Skype conversations, and in the case of an international year only, a visit by a member of Keele staff to your host institution, typically after the first semester.

16. Learning Resources

Chemistry at Keele is based in the Lennard-Jones building, which houses excellent, well-equipped teaching and research laboratory facilities. Each module has a site within the university's virtual learning environment (the Keele Learning Environment or KLE), which hosts teaching materials (lecture notes/slides, laboratory scripts, assessments, past examination papers, on-line quizzes, videos, screencasts and audio clips) and useful links. The KLE is accessible on or off campus and is also used for online submission and return of assessments. Each module has a module guide or specification which contains details of the specific intended learning outcomes, Graduate Attributes and assessments.

17. Other learning opportunities

Study abroad (semester)

Because studying abroad has potential implications for Royal Society of Chemistry accreditation of the MChem degree students wishing to Study Abroad must discuss this in advance with the School of Chemical and Physical Sciences Chemistry and Forensic Science 'Study Abroad tutor' to identify and agree whether any guided study will be required to ensure their eligibility for Royal Society of Chemistry Accreditation.

Students on the Chemistry MChem programme have the potential opportunity to spend a semester abroad in their second year studying at one of Keele's international partner universities.

Exactly which countries are available depends on the student's choice of degree subjects. An indicative list of countries is on the website (http://www.keele.ac.uk/studyabroad/partneruniversities/); however this does not guarantee the availability of study in a specific country as this is subject to the University's application process for studying abroad.

No additional tuition fees are payable for a single semester studying abroad but students do have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad to be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Whilst students are studying abroad any Student Finance eligibility will continue, where applicable students may be eligible for specific travel or disability grants. Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible for income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

Study Abroad (International Year)

A summary of the International Year, which is a potential option for students after completion of year 2 (Level 5), is provided at Annex A.

Industrial Placement Year

A summary of the Placement Year, which is a potential option for students after completion of year 2 (Level 5), is provided at Annex B.

If you are interested in spending a year in industry on a placement, then our Careers Tutor will advise and support you in applying for suitable placements.

18. Additional costs

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation.

We do not anticipate any further costs for this undergraduate programme.

19. Quality management and enhancement

The quality and standards of learning in Chemistry are subject to a continuous process of monitoring, review and enhancement.

- The Learning and Teaching Committee of the School of Chemical and Physical Sciences is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.
- Individual modules and the Chemistry Programme as a whole are reviewed and enhanced every year in the annual programme review which takes place at the end of the academic year and as part of the University's Curriculum Annual Review and Development (CARD) process.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Internal Quality Audit (IQA) process.

Student evaluation of, and feedback on, the quality of learning on every Chemistry module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of the Curriculum Annual Review and Development (CARD) process.
- Findings related to the Chemistry Programmes from the annual National Student Survey (NSS), and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students in all three years of the Chemistry Programme is considered and acted on at regular meetings of the Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here:
http://www.keele.ac.uk/qa/externalexaminers/currentexternalexaminers/

20. The principles of programme design

The Chemistry Programmes described in this document have been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

a. UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education: http://www.qaa.ac.uk/quality-code

b. QAA Subject Benchmark Statement: Chemistry (2014) http://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-chemistry-14.pdf?sfvrsn=99e1f781_10

c. Integrated Masters (MChem) Accreditation (2017) http://www.rsc.org/Education/courses-and-careers/accredited-courses/mchem-accreditation.asp

d. Keele University Regulations and Guidance for Students and Staff: http://www.keele.ac.uk/regulations

21. Document Version History

Date of first approved version (v1.0): 22nd September 2017

Revision history

Version number[2]	Author	Date	Summary of and rationale for changes
2.0	Mike Edwards	21.09.18	Addition of Industrial Placement Year option (annex B) [Major change: reissued] Also, clarification included in the Course Regulations section about the restrictions on course transfer for International students due to UK Visa & Immigration rules

[2] 1.1, 1.2 etc. are used for minor changes and 2.0, 3.0 etc. for major changes (as defined in the University's Guidance on processes supporting curriculum changes)

Annex A: MChem Chemistry with International Year

International Year Programme

Students registered for MChem Chemistry may either be admitted for or apply to transfer during their period of study at Level 5 to the International Year programme in both their principal subjects, providing that they meet the progression criteria outlined in this document. Students accepted onto the International Year programme will have an extra year of study at an international partner institution after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the Combined Honours programme without the International Year and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5, Level 6 and Level 7 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for 'Chemistry with International Year'.

International Year Programme Aims

In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with:

1. Personal development as a student and a researcher with an appreciation of the international dimension of their subject
2. Experience of a different culture, academically, professionally and socially

Entry Requirements for the International Year

Students may apply to the 4 programme during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff.

The criteria to be applied are:

- Academic Performance (an average of 60% across all modules at Level 5 is normally required)
- General Aptitude (to be demonstrated by application for study abroad, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's personal tutor, 1st and 2nd year tutors and programme director)

Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone or Skype conversations with Study Abroad tutors, in line with recommended Personal Tutoring meeting points.
- Support from the University's Global Education Team

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

i) Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
ii) Discuss the benefits and challenges of global citizenship and internationalisation
iii) Explain how their perspective on their academic discipline has been influenced by locating it within an international setting.

In addition, students who complete 'Chemistry with International Year' will be able to:

iv) Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
v) Discuss the benefits and challenges of global citizenship and internationalisation
vi) Explain how their perspective on their academic discipline has been influenced by locating it within an international setting
vii) Design, plan and critically evaluate practical investigation, record relevant information accurately and systematically and be able to reflect upon the data in critical manner
viii) Develop, synthesize and apply fundamental principles and solve specific problems in the context of chemistry.

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

Course Regulations

Students registered for 'Chemistry with International Year' are subject to the course specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise *at least 40%* in the student's discipline area.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any Chemistry module with significant overlap to Level 6 modules to be studied on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

Additional costs for the International Year

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

Annex B

MChem Chemistry with Industrial Placement Year

Industrial Placement Year summary
Students registered for Single Honours Chemistry may either be admitted for or apply to transfer during their studies to the Single Honours 'Chemistry with Industrial Placement Year'. Students accepted onto this programme will have an extra year of study (the Industrial Placement Year) with a relevant placement provider after they have completed Year 2 (Level 5) at Keele. Students who successfully complete both the second year (Level 5) and the Industrial Placement Year will be permitted to progress to Level 6. Students who fail to satisfactorily complete the Industrial Placement Year will normally revert to the MChem Chemistry and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript. Study at Level 4, Level 5, Level 6 and Level 7 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for 'MChem Chemistry with Industrial Placement Year'.
Industrial Placement Year Programme Aims
In addition to the programme aims specified in the main body of this document, the Industrial Placement Year aims to provide students with: 1. Personal development as a student, and a researcher, with an appreciation of the industrial and applied dimension of chemistry 2. Experience of work in an industrial setting with the associated academic, safety and professional requirements
Entry Requirements for the Industrial Placement Year
Admission to the Industrial Placement Year is subject to successful application, interview and references from appropriate staff. Students have the opportunity to apply directly for the 5-year 'with Industrial Placement Year' degree programme, or to transfer onto the 5-year programme at the end of Year-1 and in Year-2 at the end of Semester 1. Students who are initially registered for the 5-year degree programme may transfer onto the 3-year degree programme at any point in time, prior to undertaking the year-long industrial placement. Students who fail to pass the industrial placement year, and those who fail to meet the minimum requirements of the industrial placement year module (minimum 30 weeks full time (1,050 hours), or equivalent, industrial placement), will be automatically transferred onto the 4-year degree programme. The criteria to be applied are: • A good University attendance record and be in 'good academic standing'. • Passed all Year-1 and Year-2 Semester 1 modules with an overall module average of > 60% • General Aptitude (to be demonstrated by application(s) to relevant placement providers with prior agreement from the Programme Lead, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's personal tutor, 1st and 2nd year tutors and Programme Lead) • Students undertaking industrial placements will be expected to complete a Health and Safety checklist prior to commencing their work experience and will be required to satisfy the Health and Safety regulations of the company or organisation at which they are based. • *(International students only)* Due to visa requirements, it is not possible for international students who require a Tier 4 Visa to apply for direct entry onto the 4-year with Industrial Placement Year degree programme. Students wishing to transfer onto this programme should discuss this with student support, the academic tutor for the Industrial Placement Year, and the Programme Lead. Students should be aware that there are visa implications for this transfer, and it is the student's responsibility to complete any and all necessary processes to be eligible for this programme. There

may be additional costs, including applying for a new Visa from outside of the UK for international students associated with a transfer to the industrial placement programme.

Students may not register for both an International Year (see Annex A) and an Industrial Placement Year; students registered for 'MChem Chemistry with Industrial Placement Year' are exempt from studying an International Year.

Student Support

Students will be supported whilst on the Industrial Placement Year via the following methods:

- Regular contact between the student and a named member of staff who will be assigned to the student as their University supervisor. The University supervisor will be in regular contact with the student throughout the year, and be on hand to provide advice (pastoral or academic) and liaise with the Placement supervisor on the student's behalf if required.
- Two formal contacts with the student during the placement year: the University supervisor will visit the student in their placement organization at around the 5 weeks after placement has commenced, and then visit again (or conduct a telephone/video call tutorial) at around 15 weeks into the placement.
- Weekly supervision sessions will take place with the placement supervisor (or his/her nominee) throughout the duration of the placement.

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete 'MChem Chemistry with Industrial Placement Year' will be able to:

i) Apply the chemical theories and laboratory skills learnt to real situations in the industrial workplace to design, plan, risk asses, and critically evaluate practical investigations
ii) Develop key professional skills in the accurate documentation of information; the analysis of chemical data; and the planning and safe operation of chemical processes
iii) Develop employability skills in the presentation and communication of data; the writing of reports; and the ability to work effectively, individually, and as part of a team
iv) Explain how their perspective on chemistry has been influenced by working within an industrial setting

These learning outcomes will be assessed through the non-credit bearing Industrial Placement Year module (CHE-30054) which involves:

(i) An oral presentation on the placement year
(ii) A placement portfolio containing a reflective diary on the students work and experience, an evaluation of the students' performance by the placement host, and a report on the work done.

Course Regulations

Students registered for the 'MChem Chemistry with Industrial Placement Year' are subject to course specific regulations (if any) and the University regulations. In addition, during the Industrial Placement Year, the following regulations will apply:

- Students undertaking the Industrial Placement Year must successfully complete the zero-credit rated 'Industrial Placement Year' module (CHE-30054)
- In order to ensure a high-quality placement experience, each placement agency will sign up to a placement contract (analogous to a service level agreement).
- Once a student has been accepted by a placement organisation, the student will make a pre-placement visit and a member of staff identified within the placement contract will be assigned as the placement

supervisor. The placement supervisor will be responsible for ensuring that the placement experience meets the agreed contract agreed with the University.

- The placement student will also sign up an agreement outlining his/her responsibilities in relation to the requirements of each organisation.

Students will be expected to behave professionally in terms of:

(i) conforming to the work practices of the organisation; and

(ii) remembering that they are representatives of the University and their actions will reflect on the School and have an impact on that organisation's willingness (or otherwise) to remain engaged with the placement.

Additional costs for the Industrial Placement Year

Tuition fees for students on the Industrial Placement Year will be charged at 20% of the annual tuition fees for that year of study, as set out in Section 1. The Industrial Placement Year can be included in your Student Finance allocation; to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their placement provider, accommodation, food and personal costs. Depending on the placement provider additional costs may include parking permits, travel and transport, suitable clothing, DBS checks, and compulsory health checks.

A small stipend may be available to students from the placement provider during the placement but this will need to be explored on a placement-by-placement basis as some organisations, such as charities, may not have any extra money available. Students should budget with the assumption that their placement will be unpaid.

Eligibility for student finance will depend on the type of placement and whether it is paid or not. If it is paid, this is likely to affect student finance eligibility, however if it is voluntary and therefore unpaid, should not affect student finance eligibility. Students are required to confirm eligibility with their student finance provider.

International students who require a Tier 4 visa should check with the Immigration Compliance team prior to commencing any type of paid placement to ensure that they are not contravening their visa requirements.