Programme Specification (Undergraduate)

For students entering in 2018/19
Date amended: May 2019

1. Programme title(s) and UCAS code(s):

MChem Chemistry F105

MChem Chemistry with a Year in Industry F106

MChem Chemistry with a Year Abroad* F107

MChem Chemistry with Forensic Science F1FL

MChem Chemistry with Forensic Science with a Year in Industry F1F5

MChem Chemistry with Forensic Science with a Year Abroad* F1FK

MChem Pharmaceutical Chemistry F150

MChem Pharmaceutical Chemistry with a Year in Industry F152

MChem Pharmaceutical Chemistry with a Year Abroad* F153

** The year abroad can be spent in Europe, USA, Canada or China*
[BSc Chemistry with a Year Abroad; BSc Chemistry with Forensic Science with a Year Abroad and BSc Pharmaceutical Chemistry with a Year Abroad are available as *exit awards only* for students failing to progress from the 3rd to 4th years on F107, F1FK and F153. In these cases students would have to take the 3rd year of the appropriate BSc programme before they can achieve these awards].

2. Awarding body or institution:

University of Leicester

3. a) Mode of study:

Full time

b) Type of study:

Campus based

Some Industry/year abroad 3rd year modules are taken by distance learning.

4. Registration periods:

The normal period of registration is four years (five years for students coming through the STEM foundation route).

The maximum period of registration is six years.

5. Typical entry requirements:

A-level ABB or equivalent and GCSE Maths grade A

6. Accreditation of Prior Learning:

APL will not be accepted for exemptions from individual modules, however may be considered for direct entry to year 2, on a case by case and subject to the general provisions of the University APL policy.

7. Programme aims:

The programme aims to provide a broad and in depth understanding of ideas central to chemistry.

- To train students in the practical skills necessary for the safe manipulation of chemicals
- To generate interest in, and understanding of, the wider role of chemistry in society e.g. health, industry, sustainability
- To enable students to develop independent learning skills as well as the experience of working as part of a team
- To stimulate intellectual development, develop powers of critical analysis and ability to solve problems
- To enhance written and oral communication skills
- To provide students with training in mathematical techniques and IT skills
- To introduce student to chemical research methodology through carrying out an extended research project
- To introduce students to a range topics of current chemical research
- To equip students with the knowledge and generic skills for employment or further training in R&D, science based industry and establishments, education, and for training at management levels in other professions.

In addition for the "with a Year in Industry" variants:

- To provide students with an experience of the application of chemistry and professional skills in an industrial environment and to reinforce knowledge through its use in different environments.
- To gain an appreciation of the full range of skills required by chemists in industry.

In addition for the "with a Year Abroad" variants:

- To provide experience of study of Chemistry at an overseas University, to reinforce knowledge through use in different environments and when studying in Europe & China, development of communication skills in a foreign language.

Additional aims and objectives for related degrees

Chemistry with Forensic Science

- To provide an understanding of the requirements of a forensic investigation from evidence collection through to court proceedings.
- To provide an understanding of the different types forensic evidence and the techniques for forensic analysis and the limitations and reliability of some of these methods.
- To provide a broad experience of analytical techniques in chemistry and their application in forensic analysis.

Pharmaceutical Chemistry

- To provide a broad understanding of the chemistry that underpins central areas of biochemistry.
- To provide a broad understanding of the processes involved in development of new drugs including drug design, discovery, mode of action and production.

8. Reference points used to inform the programme specification:

- QAA Frameworks for Higher Education Qualifications in England Wales and Northern Ireland
- QAA Benchmarking Statement for Chemistry 2014
- University of Leicester Learning and Teaching Strategy 2016-2020
- University of Leicester Periodic Developmental Review Report
- External Examiners' reports (annual)
- University Employability Strategy
- Destinations of Leavers from Higher Education (DLHE) survey
- Royal Society of Chemistry accreditation guidance

9. Programme Outcomes:

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(a) Discipline specific knowledge and competencies		
(i) Mastery of an appropriate body of knowledge		
Typical students should be able to: recall and apply the basic concepts of chemistry theory across all 3 main areas of chemistry* (inorganic, organic & physical) and related mathematics; solve structured and unseen model problems; conduct experiments and apply practical techniques. Typical students should have detailed knowledge of selected topics in at least 2* of the broad areas of chemistry (analytical, organic, inorganic and physical). Demonstrate specialist knowledge at Masters-level (FHEQ level 7) in some areas of chemistry.	Lectures; tutorials; specified & directed reading; problem classes; problem-based learning; open ended group work; laboratory practical classes; research projects; computer aided learning.	Written examinations; assessed coursework including – tutorial problems, computer tests, oral presentations; assessed practical work and reports.
Specific to Chemistry with Forensic Science: knowledge of forensic methods of evidence collection and analysis and the British criminal justice system.	Lectures; specified & directed reading; laboratory practical classes.	Written examinations; assessed coursework including – written work, essays, practical reports, oral presentations
Specific to Pharmaceutical Chemistry: knowledge and understanding of biochemistry; knowledge of processes of drug discovery. *For Pharmaceutical Chemistry there is less coverage of inorganic and physical chemistry, in year 3, the detailed knowledge is in organic chemistry and pharmaceutical chemistry.	Lectures; specified & directed reading; laboratory practical classes.	Written examinations; assessed coursework including – written work, essays, oral presentations.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(ii) Understanding and application of key concepts and techniques		
Typical students should be able to: apply chemical concepts in new situations (e.g. ability to predict physical and chemical properties by comparison with analogues); apply logic and chemical knowledge to make deductions based on (limited) evidence; solve familiar and unfamiliar chemistry related problems; design, construct and conduct chemical experiments using standard equipment and following safe procedures; use computer programs to retrieve & analyse data; describe and discuss the accumulation of scientific evidence; design experiments (practical or theoretical) to solve a chemical problem; apply conceptual knowledge in a research environment.	Lectures; tutorials; specified & directed reading; problem classes; problem-based learning; open ended group work; laboratory practical classes; research projects; computer aided learning.	Written examinations; assessed coursework including – tutorial problems, computer tests, oral presentations; assessed practical work, lab-notebooks and laboratory / project reports.
(iii) Critical analysis of key issues		
Typical students should be able to: critically appraise physical & chemical information and discuss its limitations; draw quantitative conclusions from sample data; summarise key findings of scientific papers; critically assess and compare scientific theories. Specific to Chemistry with Forensic Science: ability to analyse forensic evidence and appreciate reliability of conclusions.	Lectures; tutorials; problem-based learning; problem classes, open ended group work; laboratory practical classes; research projects; computer aided learning.	Written examinations; practical & projects reports; oral presentations; assessed practical work; assessed computer exercises.
(iv) Clear and concise presentation of material		
Typical students should be able to: present scientific ideas, data and results in a variety of (appropriate) forms e.g. reports, seminars, posters, papers etc; use appropriate software for presenting and modelling chemical structures and systems; participate in scientific discussion and debate.	Lectures, tutorials; problem-based learning; group based problem classes; open ended group project work; laboratory practical classes; research projects.	Laboratory notebooks; practical and project reports; oral presentations; assessed practical work including lab samples & associated data; assessed computer exercises; tutorial work

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(v) Critical appraisal of evidence with appropriate insight		
Typical students should be able to discuss and implement experimental methodology; collect and critically analyse data; draw valid inferences from data in a variety of settings; discuss and criticize scientific literature.	Tutorials; problem-based learning; lectures; open ended group project work; laboratory practical classes; research projects.	Written examinations; reports; oral presentations; assessed practical work; assessed computer exercises; assessed problems; project assessments.
(vi) Other discipline specific competencies		
Typical students should be able to: discuss, design and implement scientific experiments; competently use a range of standard laboratory equipment; describe and adhere to laboratory safety procedures; describe and discuss some areas of current research in chemistry	Tutorials; problem-based learning; research projects.	Written reports; oral presentations; assessed practical work; written examinations.
(b) Transferable skills		
(i) Oral communication		
Typical students should be able to: describe and discuss scientific concepts to a variety of audiences; give reasoned arguments in response to chemical questions.	Tutorials; problem-based learning; group problem solving classes; research projects.	Oral presentations and questioning (including projects)
(ii) Written communication		
Typical students should be able to write concise and clear scientific reports, laboratory notebooks & reports and project summaries; write CVs; clearly discuss some areas of current research in chemistry in written form.	Tutorials; problem-based learning; laboratory practical classes; CV writing workshop; research projects.	Written lab-notebooks, project and laboratory reports; assessed CVs; assessed coursework including essays, written examinations.
(iii) Information technology		
Typical students should be able to: use spreadsheets, word processing and presentation facilities; use basic IT skills to access chemical information from online databases; use mathematical packages for data analysis; use chemistry specific software such as drawing or molecular modelling packages.	Workshops; research projects; literature based coursework exercises; laboratory practical classes	Assessed IT tasks; laboratory/project assessments; practical and project reports; assessed problems.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(iv) Numeracy		
Typical students should be able to: use analytical and graphical methods; analyse data; solve numerical problems involving e.g. calculus, linear algebra.	Lectures; group problem solving classes; problem-based learning; research project; laboratory practical classes.	Written examinations; practical and project reports; oral presentations; assessed practical work; assessed problems
(v) Team working		
Typical students should be able to: discuss concepts and formulate plans working with peers; recognise individual strengths within a team; organise time and tasks coherently between group members; produce joint reports/presentations.	Group problem solving classes, coursework & projects; problem-based learning; research projects.	Group assessment (outcomes and oral questioning); project assessment.
(vi) Problem solving		
Typical students should be able to: analyse problems; plan and implement projects; apply chemistry knowledge and problem solving ability to novel applications; solve unfamiliar numerical problems.	Lectures; tutorials; problem-based learning; laboratory classes; open ended group work; research projects.	Assessed examinations; assessed problems; group work assessment; project assessments.
(vii) Information handling		
Typical students should be able to: gather, retrieve and manipulate chemical information and data from a variety of sources, analyse & use it to support a chemical argument; describe and discuss the scientific method; present data in various forms (e.g. tabular and graphical); access, search and appraise articles in scientific journals/literature.	Lectures, tutorials; problem-based learning; laboratory and project supervision; group problem solving classes; research projects.	Assessed examinations; assessed problems; project and laboratory reports; oral presentations;.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(viii) Skills for lifelong learning		
Typical students should be able to: plan and undertake projects involving elements of independent research; access, search and appraise scholarly articles; collect and analyse data; search for and pursue employment and/or further study opportunities; work effectively in teams; work to deadlines managing their time effectively.	Laboratory classes & research projects; careers / skills training sessions; lectures from visiting speakers.	Open note assessments; meeting deadlines; Project assessments; written examinations; assessed CVs;
Students taking an industrial placement year will also appreciate the cultural environment of different businesses.	Experience with industry.	Reflective coursework exercises.

10. Progression points:

In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course.

Practical & project requirements: Modules CH1205, CH2204, CH3271, CH4261 & CH4262 must be passed **at the first attempt**, except at the discretion of the Board of Examiners who may ask students to resubmit one or more assessed coursework elements where it is possible for students to achieve a pass mark for the module by improving their mark in individual coursework elements. There are no resit opportunities for missed non-mitigated practical work. Practical modules CH1205, CH2204 & CH3271 also have a requirement of at least 75% attendance (and completion) of scheduled *laboratory* sessions; if this is not achieved then the module will be automatically failed. A limited number of additional "catch-up" sessions may be provided for students who have accepted mitigation for non-attendance.

Year 2 to 3 progression: In order to remain on the MChem programme students are required to achieve a CWA of at least 60% at the end of their 2nd year and have no resits. Students whose CWA is between 55-60% (or who have a resit) will be individually considered for progression by the exam board in light of any mitigating or other circumstances. Students who fail to meet these criteria at the end of the second year are required to transfer to the relevant BSc programme.

Students undertaking a Year Abroad are required to achieve an average of 60% or higher in their year 2 semester 1 examinations (and coursework) in order to be allowed to make an application to the overseas University. If a student fails to meet this requirement they may be able to remain as a MChem student but may not go on their year abroad (students with marks between 57-60% will be considered on a case by case basis).

Year 3 to 4 progression:

Students will need a Level 3 CWA of 50% or higher to progress to their 4th year. Failure to achieve this will mean that they are considered by the Board of Examiners for the appropriate Bachelor degree. Students taking a placement year may be able to graduate with a BSc with a Year in Industry or a Year Abroad as long as they have met the requirements outlined below.

Failure of modules in year 3 MChem for campus based students: In exceptional circumstances a student may fail some credits in year 3. If only 15 credits are failed then students can proceed to year 4 and re-sit the failed assessments or alternatively they can graduate immediately with a BSc, as the

third year of the MChem programme meets the intended learning outcomes of the equivalent BSc programme.

Failure of modules in year 3 MChem for students on placement:

Industry: If students fail either module CH3651 or CH3652 and pass both CH3661 and CH3662 then they will be automatically transferred to the 3rd year of the appropriate BSc degree and graduate "with a Year in Industry" on successful completion of their final year. If students fail either module CH3651 or CH3652 then they will be automatically transferred to the 3rd year of the appropriate BSc degree and will not graduate "with a Year in Industry".

Abroad USA & Canada: There are no resits for modules taken in the USA or Canada. If a student fails a module counting towards their 24 USA or Canadian credit hours then they will be automatically transferred to the start of the 3rd year of the appropriate BSc programme. If they have passed >75% of the modules taken in the USA/Canada then, after successful completion of the 3rd year, they can graduate "with a Year Abroad" otherwise they will graduate with a BSc degree.

Abroad Europe & China: If students fail either module CH3601 or CH3602 and pass both CH3661 and CH3662 then they will be automatically transferred to the 3rd year of the appropriate BSc degree and graduate "with a Year Abroad" on successful completion of their final year. If students fail either module CH3651 or CH3652 then they will be automatically transferred to the 3rd year of the appropriate BSc degree and will not graduate "with a Year Abroad".

Year 4 completion: To graduate with an Integrated Masters degree students will need an overall CWA for year 4 of 50% or higher. They will also need to pass both elements of the research project CH4261 & CH4262. Failure to achieve either of these requirements will mean that they are considered by the Board of Examiners for the appropriate Bachelor degree.

Transfer between different degrees: Transfer from MChem Pharmaceutical Chemistry to MChem Chemistry or from MChem Chemistry with Forensic Science to MChem Chemistry is allowed at the end of the 1st year (and in exceptional cases at the end of the 2nd year). Transfer from MChem Chemistry to MChem Pharmaceutical Chemistry or MChem Chemistry to MChem Chemistry with Forensic Science is only allowed at the start of the 1st year (within the first two weeks of the first semester). Transfer on to a degree with a year abroad or in industry is only allowed by the end of the second week of the second year (exceptionally the department may allow a student to transfer onto these programmes after this date). In a very small number of cases it may be necessary (to meet the requirements of accreditation by the RSC) for students on the MChem Chemistry with Forensic Science programmes (F1FL, F1F5, F1FK) to transfer to the analogous MChem Chemistry programme at the end of the 3rd year. This will apply *only* to those students wishing to take final year projects containing no appreciable forensic science and/or analytical chemistry content and the Department will discuss this on a case by case basis with the students concerned.

11. Scheme of Assessment

The programme follows the standard scheme of award and classification set out in Senate Regulation 5.

12. Special features:

Small group tutorials, group problem solving, student-centred learning, research based projects, links with industry, problem and context based learning, opportunities for industrial placements and years abroad.

13. Indications of programme quality

All degrees were accredited by the Royal Society of Chemistry in Jan 2016
Academic Review
External examiners reports
Destinations of Leavers from Higher Education (DLHE) survey

14. External Examiner(s) reports

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports for this programme can be found here.

Appendix 1: Programme structure (programme regulations)

Appendix 2: Module specifications

See module specification database http://www.le.ac.uk/sas/courses/documentation

Appendix 3: Skills matrix

MChem Chemistry

YEAR 1

SEMESTER 1

Core modules		Credits
CH1200	GENERAL CHEMISTRY	15
CH1206	SCIENTIFIC METHOD & PRINCIPLES OF ANALYTICAL CHEMISTRY	15

SEMESTER 2

Core modules		
CH1207	CHEMISTRY OF THE REAL WORLD	15

YEAR-LONG

Core modules		
CH1201	INTRODUCTORY ORGANIC CHEMISTRY	15
CH1202	INTRODUCTORY INORGANIC CHEMISTRY	15
CH1203	INTRODUCTORY PHYSICAL CHEMISTRY	15
CH1204	CHEMISTRY KEY SKILLS & MATHS	15
CH1205	INTRODUCTORY PRACTICAL CHEMISTRY	15
		Total 120

Delivery of the year-long modules will be weighted towards semester 2 to ensure approx. 60 credits is delivered in each semester.

YEAR 2

SEMESTER 1

Core modules		Credits
CH2200	SPECTROSCOPY THEORY & PRACTICE	15
CH2207	POLYMER & MATERIALS CHEMISTRY	15

SEMESTER 2

Core modules		
CH2206	ANALYTICAL CHEMISTRY IN PRACTICE	15

YEAR-LONG

Core modules		
CH2201	ORGANIC CHEMISTRY	15
CH2202	INORGANIC CHEMISTRY	15
CH2203	PHYSICAL CHEMISTRY	15
CH2204	PRACTICAL CHEMISTRY & KEY SKILLS	30
		Total 120

Delivery of the year-long modules will be weighted towards semester 2 to ensure approx. 60 credits is delivered in each semester.

In order to continue on to the 3rd year of the MChem degree all students will be required to achieve a CWA of at least 60% in their 2nd year. Students whose CWA is between 55-60% will be individually considered for progression by the exam board. Students not making this progression threshold will be transferred onto the appropriate BSc degree.

YEAR 3

SEMESTER 1

Core modules		**Credits**
CH3201	ADVANCED ORGANIC CHEMISTRY	15
CH3202	ADVANCED INORGANIC CHEMISTRY	15

SEMESTER 2

Core modules		
CH3203	ADVANCED PHYSICAL CHEMISTRY	15
Optional modules: 2 from		
CH3204	BIOLOGICAL CHEMISTRY	15
CH3205	METALS IN SYNTHESIS	15
CH3206	ADVANCED ANALYTICAL CHEMISTRY	15
CH3208	ADVANCED MATERIALS CHEMISTRY	15

YEAR-LONG

Core modules		
CH3271	ADVANCED CHEMISTRY PRACTICAL	30
CH3270	MCHEM GENERAL PAPER & KEY SKILLS	15
		Total 120

The year-long modules will be suitably delivered weighted to ensure approx. 60 credits in each semester.

In order to continue on to the 4th year of the MChem degree all students will be required to achieve a CWA of at least 50% in their 3rd year. Students not making this progression threshold will be transferred onto and graduate from the appropriate BSc degree.

YEAR 4

YEAR-LONG

Core modules		**Credits**
CH4261	CHEMISTRY PROJECT PART I *	30
CH4262	CHEMISTRY PROJECT PART II *	30
Optional modules: 4 from		
CH4201	ADVANCED STRUCTURE DETERMINATION	15
CH4202	ADVANCED SYNTHETIC METHODS	15
CH4203	EARTH SYSTEM SCIENCE	15
CH4204	GREEN CHEMISTRY	15
CH4207	COMPUTATIONAL CHEMISTRY & QUANTUM MECHANICS	15
CH4208	BIOINORGANIC CHEMISTRY	15
CH4211	MEDICINAL CHEMISTRY	15
		Total 120

* Both these modules have to be passed at ≥40% to graduate.

Students who have transferred from the MChem Chemistry with Forensic Science to the MChem Chemistry programme *at the end of the 3rd year* (only in exceptional cases due to choice of final year project and RSC accreditation requirements) will also be able to choose CH4212 as an optional module.

MChem Chemistry with a Year in Industry

FIRST, SECOND AND FOURTH YEAR MODULES

The first-, second-, and fourth-year modules are the same as for the MChem Chemistry degree.

THIRD YEAR MODULES

Students will spend their third year in industry. Whilst on placement students will take the module listed below by distance learning, as well as the placement project.

YEAR 3

YEAR-LONG

Core modules		Credits
CH3601	CORE CHEMISTRY DISTANCE LEARNING PART 1	30
CH3602	CORE CHEMISTRY DISTANCE LEARNING PART 2	30
CH3651	PLACEMENT PROJECT PRACTICAL	30
CH3652	PLACEMENT PROJECT REPORT	30
		Total 120

MChem Chemistry with a Year Abroad

FIRST, SECOND AND FOURTH YEAR MODULES

The first-, second-, and fourth-year modules are the same as for the MChem Chemistry degree.

THIRD YEAR MODULES

1. Students who choose a year abroad in the **USA** or **Canada** will spend their third year studying at a partner institution in their chosen country. In this year they will study modules equivalent to those studied in the third year of the MChem at Leicester. As a result there may be some restrictions on their option choices in the fourth year. Each case will be considered individually.

2. Students who choose a year abroad in the **European Union** or **China** will spend their third-year studying at a partner institution in their chosen country and will take the same modules (listed above) as for the Year in Industry programme.

MChem Chemistry with Forensic Science

YEAR 1

SEMESTER 1

Core modules		Credits
CH1200	GENERAL CHEMISTRY	15
CH1206	SCIENTIFIC METHOD & PRINCIPLES OF ANALYTICAL CHEMISTRY	15

SEMESTER 2

Core modules		Credits
CH1208	INTRODUCTORY FORENSIC SCIENCE I	15

YEAR-LONG

Core modules		Credits

CH1201	INTRODUCTORY ORGANIC CHEMISTRY	15
CH1202	INTRODUCTORY INORGANIC CHEMISTRY	15
CH1203	INTRODUCTORY PHYSICAL CHEMISTRY	15
CH1204	CHEMISTRY KEY SKILLS & MATHS	15
CH1205	INTRODUCTORY PRACTICAL CHEMISTRY	15
		Total 120

Delivery of the year-long modules will be weighted towards semester 2 to ensure approx. 60 credits is delivered in each semester.

YEAR 2

SEMESTER 1

Core modules		**Credits**
CH2200	SPECTROSCOPY THEORY & PRACTICE	15
CH2208	INTRODUCTORY FORENSIC SCIENCE II	15

SEMESTER 2

Core modules		**Credits**
CH2206	ANALYTICAL CHEMISTRY IN PRACTICE	15

YEAR-LONG

Core modules		**Credits**
CH2201	ORGANIC CHEMISTRY	15
CH2202	INORGANIC CHEMISTRY	15
CH2203	PHYSICAL CHEMISTRY	15
CH2204	PRACTICAL CHEMISTRY & KEY SKILLS	30
		Total 120

Delivery of the year-long modules will be weighted towards semester 2 to ensure approx. 60 credits is delivered in each semester.

In order to continue on to the 3rd year of the MChem degree all students will be required to achieve a CWA of at least 60% in their 2nd year. Students whose CWA is between 55-60% will be individually considered for progression by the exam board. Students not making this progression threshold will be transferred onto the appropriate BSc degree.

YEAR 3

SEMESTER 1

Core modules		**Credits**
CH3201	ADVANCED ORGANIC CHEMISTRY	15
CH3202	ADVANCED INORGANIC CHEMISTRY	15

SEMESTER 2

Core modules		
CH3203	ADVANCED PHYSICAL CHEMISTRY	15
CH3212	FORENSIC SCIENCE	15
Optional modules: 1 from		
CH3204	BIOLOGICAL CHEMISTRY	15
CH3205	METALS IN SYNTHESIS	15
CH3206	ADVANCED ANALYTICAL CHEMISTRY	15
CH3208	ADVANCED MATERIALS CHEMISTRY	15

YEAR-LONG

Core modules		
CH3271	ADVANCED CHEMISTRY PRACTICAL	30
CH3270	MCHEM GENERAL PAPER & KEY SKILLS	15
		Total 120

The year-long modules will be suitably delivered weighted to ensure approx. 60 credits in each semester.

In order to continue on to the 4th year of the MChem degree all students will be required to achieve a CWA of at least 50% in their 3rd year. Students not making this progression threshold will be transferred onto and graduate from the appropriate BSc degree.

YEAR 4

YEAR-LONG

Core modules		**Credits**
CH4261	CHEMISTRY PROJECT PART I *	30
CH4262	CHEMISTRY PROJECT PART II *	30
CH4212	ADVANCED FORENSIC SCIENCE	15
Optional modules: 3 from		
CH4201	ADVANCED STRUCTURE DETERMINATION	15
CH4202	ADVANCED SYNTHETIC METHODS	15
CH4203	EARTH SYSTEM SCIENCE	15
CH4204	GREEN CHEMISTRY	15
CH4207	COMPUTATIONAL CHEMISTRY & QUANTUM MECHANICS	15
CH4208	BIOINORGANIC CHEMISTRY	15
CH4211	MEDICINAL CHEMISTRY	15
		Total 120

* Both these modules have to be passed at ≥40% to graduate.

MChem Chemistry with Forensic Science with a Year in Industry

FIRST, SECOND AND FOURTH YEAR MODULES

The first-, second-, and fourth-year modules are the same as for the MChem Chemistry with Forensic Science degree.

THIRD YEAR MODULES

Students will spend their third year in industry. Whilst on placement students will take the module listed below by distance learning, as well as the placement project.

YEAR 3

YEAR-LONG

Core modules		**Credits**
CH3601	CORE CHEMISTRY DISTANCE LEARNING PART 1	30
CH3602	CORE CHEMISTRY DISTANCE LEARNING PART 2	30
CH3651	PLACEMENT PROJECT PRACTICAL	30
CH3652	PLACEMENT PROJECT REPORT	30
		Total 120

MChem Chemistry with Forensic Science with a Year Abroad

FIRST, SECOND AND FOURTH YEAR MODULES

The first-, second-, and fourth-year modules are the same as for the MChem Chemistry with Forensic Science degree.

THIRD YEAR MODULES

1. Students who choose a year abroad in the **USA** or **Canada** will spend their third year studying at a partner institution in their chosen country. In this year they will study modules equivalent to those studied in the third year of the MChem at Leicester. As a result there may be some restrictions on their option choices in the fourth year. Each case will be considered individually.

2. Students who choose a year abroad in the **European Union** or **China** will spend their third-year studying at a partner institution in their chosen country and will take the same modules (listed above) as for the Year in Industry programme.

MChem Pharmaceutical Chemistry

YEAR 1

SEMESTER 1

Core modules		Credits
CH1200	GENERAL CHEMISTRY	15
CH1206	SCIENTIFIC METHOD & PRINCIPLES OF ANALYTICAL CHEMISTRY	15

SEMESTER 2

Core modules		Credits
CH1209	INTRODUCTORY PHARMACEUTICAL CHEMISTRY	15

YEAR-LONG

Core modules		Credits
CH1201	INTRODUCTORY ORGANIC CHEMISTRY	15
CH1202	INTRODUCTORY INORGANIC CHEMISTRY	15
CH1203	INTRODUCTORY PHYSICAL CHEMISTRY	15
CH1204	CHEMISTRY KEY SKILLS & MATHS	15
CH1205	INTRODUCTORY PRACTICAL CHEMISTRY	15
		Total 120

Delivery of the year-long modules will be weighted towards semester 2 to ensure approx. 60 credits is delivered in each semester.

YEAR 2

SEMESTER 1

Core modules		Credits
CH2200	SPECTROSCOPY THEORY & PRACTICE	15
BS2013	PHYSIOLOGY & PHARMACOLOGY	15

SEMESTER 2

Core modules		Credits
CH2206	ANALYTICAL CHEMISTRY IN PRACTICE	15

YEAR-LONG

Core modules		Credits
CH2201	ORGANIC CHEMISTRY	15
CH2202	INORGANIC CHEMISTRY	15
CH2203	PHYSICAL CHEMISTRY	15
CH2204	PRACTICAL CHEMISTRY & KEY SKILLS	30
		Total 120

Delivery of the year-long modules will be weighted towards semester 2 to ensure approx. 60 credits is delivered in each semester.

In order to continue on to the 3rd year of the MChem degree all students will be required to achieve a CWA of at least 60% in their 2nd year. Students whose CWA is between 55-60% will be individually considered for progression by the exam board. Students not making this progression threshold will be transferred onto the appropriate BSc degree.

YEAR 3

SEMESTER 1

Core modules		Credits
CH3201	ADVANCED ORGANIC CHEMISTRY	15
CH3202	ADVANCED INORGANIC CHEMISTRY	15

SEMESTER 2

Core modules		
CH3211	PHARMACEUTICAL CHEMISTRY	15
Optional modules: 2 from		
CH3203	ADVANCED PHYSICAL CHEMISTRY	15
CH3204	BIOLOGICAL CHEMISTRY	15
CH3205	METALS IN SYNTHESIS	15
CH3206	ADVANCED ANALYTICAL CHEMISTRY	15
CH3208	ADVANCED MATERIALS CHEMISTRY	15

YEAR-LONG

Core modules		
CH3271	ADVANCED CHEMISTRY PRACTICAL	30
CH3270	MCHEM GENERAL PAPER & KEY SKILLS	15
		Total 120

The year-long modules will be suitably delivered weighted to ensure approx. 60 credits in each semester.

In order to continue on to the 4th year of the MChem degree all students will be required to achieve a CWA of at least 50% in their 3rd year. Students not making this progression threshold will be transferred onto and graduate from the appropriate BSc degree.

YEAR 4

YEAR-LONG

Core modules		Credits
CH4261	CHEMISTRY PROJECT PART I *	30
CH4262	CHEMISTRY PROJECT PART II *	30
CH4211	MEDICINAL CHEMISTRY	15

Optional modules: 3 from

CH4201	ADVANCED STRUCTURE DETERMINATION	15
CH4202	ADVANCED SYNTHETIC METHODS	15
CH4203	EARTH SYSTEM SCIENCE	15
CH4204	GREEN CHEMISTRY	15
CH4207	COMPUTATIONAL CHEMISTRY & QUANTUM MECHANICS	15
CH4208	BIOINORGANIC CHEMISTRY	15

Total 120

* Both these modules have to be passed at ≥40% to graduate.

MChem Pharmaceutical Chemistry with a Year in Industry

FIRST, SECOND AND FOURTH YEAR MODULES

The first-, second-, and fourth-year modules are the same as for the MChem Pharmaceutical Chemistry degree.

THIRD YEAR MODULES

Students will spend their third year in industry. Whilst on placement students will take the module listed below by distance learning, as well as the placement project.

YEAR 3

YEAR-LONG

Core modules		**Credits**
CH3601	CORE CHEMISTRY DISTANCE LEARNING PART 1	30
CH3602	CORE CHEMISTRY DISTANCE LEARNING PART 2	30
CH3651	PLACEMENT PROJECT PRACTICAL	30
CH3652	PLACEMENT PROJECT REPORT	30

Total 120

MChem Pharmaceutical Chemistry with a Year Abroad

FIRST, SECOND AND FOURTH YEAR MODULES

The first-, second-, and fourth-year modules are the same as for the MChem Pharmaceutical Chemistry degree.

THIRD YEAR MODULES

Students can **only** choose a year abroad in the **European Union** or **China** & will spend their third-year studying at a partner institution in their chosen country and will take the same modules (listed above) as for the Year in Industry programme.