

## Programme Specification

MChem Chemistry (MChem)

For students entering Part 1 in September 2017

UCAS Code: F103

UFCHEMM

**This document sets out key information about your Programme and forms part of your Terms and Conditions with the University of Reading.**

Awarding Institution	University of Reading
Teaching Institution	University of Reading
Length of Programme	4 years
Accreditation	The Royal Society of Chemistry

### Programme information and content

The programme aims to provide you with a broad coverage of the core disciplines within Chemistry. You will study Analytical, Inorganic, Organic and Physical Chemistry as part of the four year MChem chemistry programme. Throughout the course there will be opportunities to work individually or as part of a team, this may take the form of a practical experiment or an oral presentation or a group exercise. The course is designed as a progression with years 1 and 2 being core knowledge that is fundamentally important to enable you to progress to more challenging topics in third and final years. The final year of a MChem programme is dominated by the individual research project, this is complemented by a number of modules that look at advanced topics across the breadth of Chemistry. The final year of a MChem degree allows students to specialise to some degree in areas of Chemistry that they find of greatest interest.

The course requires every student to retain and remember details and information provided in lecture courses across terms and years, in order that more advanced courses can be fully understood and that the student becomes adept at problem solving.

Part 1:	Introduces you to the basic underpinnings of Inorganic, Organic and Physical Chemistry. Through material that will begin as a revision of A-level topics, it will progress rapidly and will present this familiar material in a new light. The goal of year 1 is to give each student the tools necessary to help them become an independent learner, provide the necessary background to enable rationalisation and predictions for unseen processes and reactions.
Part 2:	Provides you with a more in-depth study of Inorganic, Organic and Physical Chemistry. The second year sees the introduction of a dedicated stream of Analytical chemistry that is also reflected in the content of the practical class. The material covered in the second year is challenging, it builds on the content of year 1 and extends the complexity and depth of study to allow study and analysis of real world problems. Much of the material introduced in year 2 is still regarded as fundamental and a thorough understanding of the content is required for study in year 3.
Placement/Study abroad year:	This programme does not have a placement or year abroad component. You will, however, be included in all of the sessions that run to encourage

	and prepare students to seek placements and/or study abroad opportunities. If you decide that you wish to undertake a placement or study abroad opportunity and are successful in finding a placement or study abroad opportunity, you should discuss programme transfer with your personal tutor. Programmes at BSc and MChem level are available for study abroad or placement students. Please note, some restrictions apply on transfer from BSc to MChem programmes (see the handbook for more information).
Part 3:	<p>Gives you the opportunity to begin to see the application of Chemistry at the forefront its applications. The content is deliberately broad, covering all 4 streams of the discipline. The material is now beginning to become more specialised and you will experience this through study of a series of smaller self-contained units within your core modules. The third year relies heavily on accumulated knowledge built up in years 1 and 2.</p> <p>The third year also begins to refine some of the skills necessary for a successful research career. Many of these skills are familiar, having been introduced in parts 1 and 2; the third year draws these together and refines them through both practical and library research focused modules.</p>
Part 4:	<p>The main component of the final year will comprise the research project. As an individual researcher, you will have a chance to undertake a piece of research work that is your own. You will work with an academic supervisor who will advise and encourage you to develop the work to its fullest extent that the time limits permit. The choice of academic supervisor will be made towards the end of your third year; you will have the chance to meet academics to discuss research at the Project Showcase, after this session you will be asked to choose an academic supervisor as your project supervisor. More details on projects and the selection process can be found in the project handbook.</p> <p>The project is complemented by a number of advanced chemistry modules, some are compulsory and some are available as options. The compulsory modules ensure a broad tuition in the core areas of chemistry and the optional modules allow some specialization into areas of chemistry that reflect personal interests.</p>

### Module information

Each part comprises 120 credits, allocated across a range of compulsory and optional modules as shown below. Compulsory modules are listed.

#### Part 1 Modules:

Module	Name	Credits
CH1CC2	Chemical Concepts and Skills 1	20
CH1IN1	Fundamentals of Atomic Structure and the Periodic Table	20
CH1OR1	Shape, Structure and Reactivity in Organic Chemistry	20
CH1PH1	Physical Processes and Molecular Organisation	20

CH1PRA	Laboratory Skills for Chemists	20
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The following module is compulsory for students who do not have an A-level pass in Mathematics:

Code	Module Title	Credits	Level
CH1M	Chemistry M	20	4

The following module is compulsory for students who have an A-level pass at grade C-E in Mathematics and optional for those with a grade A-B:

Code	Module Title	Credits	Level
CH1M2	Mathematics for Chemistry 2	10	4

Students who are required to take CH1M will not be able to select any other optional modules. Students who select module CH1M2 will have the option to select another module equalling 10 credits from outside the department. Student who opt to take neither CH1M/CH1M2 will select other modules equalling 20 credits from outside the Department.

### Part 2 Modules:

Module	Name	Credits
CH2AN3	Analytical Chemistry	10
CH2CC2	Chemical Concepts and Skills 2	10
CH2IN1	Further Inorganic Chemistry	20
CH2OR1	Further Organic Chemistry	20
CH2PH1	Further Physical Chemistry	20
CH2PRAC	Extended Laboratory Skills for Chemists	30

Students must select a further 10 credits of optional credits at Part 2 for a list provided by the School of Chemistry, Food & Pharmacy.

If you take a year-long placement or study abroad, Part 3 as described below may be subject to variation.

### Part 3 Modules:

Module	Name	Credits
CH3AN1	X-ray Techniques and Databases in Analytical Chemistry	10
CH3AN2	Advanced Analytical Techniques for Inorganic Structure Determination	10
CH3CRP	Introduction to Chemistry Research and Practice	10
CH3I1	d and f block chemistry	10
CH3I2	Clusters, Extended Arrays and Solid-State Chemistry	10
CH3O1	Advanced Organic Chemistry - Synthesis of Complex Targets	10

CH3O2	Advanced Organic Chemistry - Contemporary Synthetic Methodology	10
CH3P1	Advanced Topics in Physical Chemistry 1	10
CH3P2	Advanced Topics in Physical Chemistry 2	10
CH3PRAC	Advanced Chemistry Practical Training	30

**Part 4 modules:**

Module	Name	Credits
CH4I2	Catalysis	10
CH4O1	Advanced Organic Chemistry - Synthesis of Complex Targets (2)	10
CH4PR	MChem Chemistry Project	60
CH4SK	Chemistry in Industry and Professional Skills	10

Students are required to select at least 10 credits from the following Physical Chemistry modules:

Code	Module Title	Credits	Level
CH4P3	Advanced Techniques in Physical Chemistry	10	7
CH4P5	Advanced Techniques in Physical Chemistry 2	10	7

In addition, students will be required to select a maximum of 20 credits from a list of optional modules provided by the School of Chemistry, Food & Pharmacy.

**Optional modules:**

The optional modules available can vary from year to year. An indicative list of the range of optional modules for your Programme is set out in the Further Programme Information. Details of optional modules for each part, including any Additional Costs associated with the optional modules, will be made available to you prior to the beginning of the Part in which they are to be taken and you will be given an opportunity to express interest in the optional modules that you would like to take. Entry to optional modules will be at the discretion of the University and subject to availability and may be subject to pre-requisites, such as completion of another module. Although the University tries to ensure you are able to take the optional modules in which you have expressed interest this cannot be guaranteed.

**Additional costs of the programme**

During your programme of study you will incur some additional costs.

For textbooks and similar learning resources, we recommend that you budget between £50 to £150 a year. The core textbook(s), which most students normally purchase, cost(s) £65 new, and there may be other books/resources which you would find it convenient to buy. The core chemistry textbook is available in e-book format from the University library. Some books may be available second-hand, which will reduce costs. A range of resources

to support your curriculum, including textbooks and electronic resources, are available through the library. Reading lists and module specific costs are listed on the individual module descriptions.

Printing and photocopying facilities are available on campus at a cost of £0.05 per page. Costs will be, on average, £10 per year.

As Chemistry is a practical subject, you will be provided with the relevant personal protective equipment at the outset of your course (laboratory coat and safety glasses). If you need to replace these items, they can be purchased from the Chemistry laboratory technical staff: £10 for a laboratory coat and £2 for safety glasses.

Costs are indicative and may vary according to optional modules chosen and are subject to inflation and other price fluctuations.

The estimates were calculated in 2016.

## **Placement opportunities**

N/A

### **Teaching and learning delivery:**

You will be taught through lectures, tutorials, workshops and laboratory classes. Assessment takes a variety of formats; tutorials are assessed by submission of written work prior to the date of the tutorial meeting, Laboratory classes are primarily assessed via a write-up of the laboratory work and results, lecture material for most modules is assessed via an end of year examination. You will also be assessed carrying out oral presentations, group work and team work exercises.

The contact hours for your Programme will be approximately 15 hours per week and will depend upon your module combination; however, information about module contact hours can be located in the relevant module description.

## **Accreditation details**

The Royal Society of Chemistry

### **Assessment**

The programme will be assessed through a combination of written examinations, coursework, oral examinations, practical examinations.

## **Progression**

To gain a threshold performance at Part 1 a student shall normally be required to achieve

- (i) an overall average of 40% over 120 credits taken in Part 1, and
- (ii) a mark of at least 30% in individual modules amounting to not less than 100 credits.

In order to progress from Part 1 to Part 2, a student shall normally be required to achieve a threshold performance at Part 1 and

- (iii) achieve an overall average of 50% over 120 credits taken in Part 1 and not less than 50% in the practical module CH1PRA [Marks of between 40%-49% will be sufficient to proceed to the BSc programme].

Those students who fail to achieve the progression criteria to Part 2 will leave with a CertHE.

To gain a threshold performance at Part 2, a student shall normally be required to achieve:

- (i) a weighted average of 40% over 120 credits taken at Part 2;
- (ii) marks of at least 40% in individual modules amounting to not less than 80 credits; and
- (iii) marks of at least 30% in individual modules amounting to not less than 120 credits, except that a mark below 30% may be condoned in no more than 20 credits of modules owned by the Department of Mathematics and Statistics.

MChem progression requirement - In order to progress from Part 2 to Part 3, a student must achieve a threshold performance at Part 2 and achieve an overall average of 50% over 120 credits taken in Part 2 (of which not less than 100 credits should normally be at 5 level or above), and not less than 50% in the practical module CH2PRAC.

Those students who achieve the threshold performance but do not meet the MChem progression requirement of an average of 50% over 120 credits will be eligible to transfer to a BSc Programme or leave with a DipHE.

Students who re-sit examinations at Part 2 and meet the MChem progression criteria will have their marks capped for classification purposes in accordance with the University regulations.

To gain a threshold performance at Part 3 a student shall normally be required to achieve an overall average of 40% over 120 credits taken in Part 3.

In order to progress from Part 3 to Part 4, a student shall normally be required to achieve a threshold performance at Part 3 and achieve marks of at least 30% in 100 credits.

Those students who fail to achieve the progression requirement to Part 4 but achieve an overall weighted average of between 35 - 39.9% may be eligible for the award of BSc

Chemical Sciences in accordance with the University's Framework for Classification and Progression for First Degrees.

A pass of at least 50% in module CH4PR is required to qualify for an honours degree.

Part 2 contributes 20%, Part 3 contributes 40%, and Part 4 contributes 40% towards the Final MChem Degree classification.

The University's honours classification scheme is:

#### Integrated Masters

Mark	Interpretation
70% - 100%	First class
60% - 69%	Upper Second class
50% - 59%	Lower Second class
40% - 49%	Third class
0% - 39%	Fail

The weighting of the Parts/Years in the calculation of the degree classification is

Integrated Masters programmes (MEng, MMath, MChem, etc)

Part 2 20%

Part 3 40%

Part 4 40%

**For further information about your Programme please refer to the Programme Handbook and the relevant module descriptions, which are available at <http://www.reading.ac.uk/module/>. The Programme Handbook and the relevant module descriptions do not form part of your Terms and Conditions with the University of Reading.**

MChem Chemistry (MChem) for students entering Part 1 in session 2017/18

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