

School of Chemistry

Important Degree Information:

B.Sc./M.A. Honours

The general requirements are 480 credits over a period of normally 4 years (and not more than 5 years) or part-time equivalent; the final two years being an approved honours programme of 240 credits, of which 90 credits are at 4000 level and at least a further 120 credits at 3000 and/or 4000 (H) levels. Refer to the appropriate Faculty regulations for lists of subjects recognised as qualifying towards either a B.Sc. or M.A. degree.

For the degree of B.Sc. Chemical Sciences (Honours) the approved honours programme of 240 credits, requires 90 credits at 4000 level and a further 110 credits (minimum) at 3000 and 4000 levels. (Subject to approval by Academic Council.)

B.Sc./M.A. Honours with Integrated Year Abroad

The general requirements are 540 credits over a period of normally 5 years (and not more than 6 years) or part-time equivalent; the final three years being an approved honours programme of 300 credits, of which 60 credits are gained during the integrated year abroad, 90 credits are at 4000 level and at least a further 120 credits at 3000 and/or 4000 (H) levels. Refer to the appropriate Faculty regulations for lists of subjects recognised as qualifying towards either a B.Sc. or M.A. degree.

M.Chem. Honours

General requirements are 600 credits over a period of normally 5 years (and not more than 6 years) or part-time equivalent; the final three years being an approved honours programme of 360 credits, of which 120 credits are at 5000 level and at least a further 210 credits at 3000 and 4000 levels.

M.Sci. Honours

General requirements are 600 credits over a period of normally 5 years (and not more than 6 years) or part-time equivalent; the final three years being an approved honours programme of 360 credits, of which 120 credits are at 5000 level and at least a further 210 credits at 3000 and 4000 levels.

Other Information: Direct entry into Level 2000 is possible, in which case credit of 120 credits at level 1000 is given on the basis of school examinations. In the case of students who spend part of the Honours Programme abroad on a recognised Exchange Scheme, the Programme Requirements will be amended to take into account courses taken while abroad.

The Honours syllabus is undergoing a major change commencing in 2002-03 and Programme requirements listed below are those for students entering the first year of the Honours Programme in 2002-03 or subsequently. Students entering the Second Year of the Honours programme in 2002-03 should refer to School Handbooks and consult Honours Advisers for the requirements of their Honours Programme.

Chemistry

Degree Programmes	Programme Requirements at:
<p>(B.Sc. Honours): Biomolecular Science</p>	<p>Biomolecular Science (B.Sc. Honours): Level 1: 45 credits comprising Biology element: Passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees. Chemistry element: 20 – 40 credits comprising pass or bypass for CH1001, pass in CH1004 Level 2: 125 credits comprising BL2007 and passes at 11 or better in BI2201, BI2202, CH2101 and CH2103 Level 3: 120 credits comprising Biology Element: BL3001; BL3002; BL3009; BL3010 and modules as listed in the entry for Chemistry Chemistry Element: CH3611, CH3612, CH3613, CH3621, CH3432, CH4613 Level 4 (H): 40 - 100 credits comprising Biology Element: TWO of BL4101, BL4102, BL4103; plus (BL4200 and BL4300) if CH4442 is NOT taken. If BL4200 is taken CH5614 and ONE of (CH5513, CH5612, CH5411) may be taken as an alternative to BL4300 Chemistry Element: 40 - 80 credits CH4442 (if BL4200 is NOT taken); TWO from (CH4611, CH4511, CH4612); CH5614 and ONE of (CH5513, CH5612, CH5411). If BL4200 is taken BL4300 may be taken as an alternative to CH5614 and ONE of (CH5513, CH5612, CH5411). If CH4442 is taken then BL4300 may be taken as an alternative to ONE of (CH5513, CH5612, CH5411). Chemistry: Direct entry into Level 2000 is possible, in which case credit of 120 credits at level 1000 is given on the basis of school examinations. In the case of students who spend part of the Honours Programme abroad on a recognised Exchange Scheme, the Programme Requirements will be amended to take into account courses taken while abroad.</p>
<p>(B.Sc. Honours): Chemical Sciences</p>	<p>Chemical Sciences (B.Sc. Honours Degree): Level 1: 40 credits comprising pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules Level 2: 60 credits comprising passes at 11 or better in CH2101 and CH2102 or CH2103 together with 60 credits from another School Level 3: 120 credits comprising CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3441 Level 4(H): 120 credits comprising CH4442, 4 from (CH4511, CH4611, CH4711, CH4612, CH4712) 4 from (CH4512, CH4613, CH4713, CH5411, CH5512-5, CH5612-4, CH5712-5) Other Information: This course is aimed at those who like Chemistry and were good at it at school, who want the varied training that a Chemistry Degree gives, but who do not wish to be professional Chemists. Up to 40 credits from the Level 3000 and Level 4000 modules listed above can be replaced with modules from other Schools.</p>

Degree Programmes	Programme Requirements at:
<p>(B.Sc. Honours): Chemistry</p>	<p>Chemistry (B.Sc. Honours): Level 1: 40 credits comprising pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules.</p> <p>Level 2: 90 credits comprising passes at 11 or better in CH2101 and either CH2102 and CH2103 or one of CH2102 and CH2103, together with 30 credits from another School. From 2003 passes in CH2101, CH2102, CH2103 and 30 credits from another School.</p> <p>Level 3: 120 credits comprising CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3441.</p> <p>Level 4(H): 120 credits comprising CH4461, CH4442, CH5411, 2 from (CH4511, CH4611, CH4711), 2 from (CH4512, CH4613, CH4713), either CH4612 or CH4712, 1 from (CH5512-5, CH5612-4, CH5712-5).</p> <p>Other Information: The Single Honours course is recognised by the Royal Society of Chemistry (RSC) for professional membership</p>
<p>(B.Sc. Honours): Chemistry and Computer Science, Internet Computing, Mathematics</p>	<p>Chemistry element of Joint Honours Degree (B.Sc. Honours): Level 1: 40 credits comprising pass or bypass for CH1001, pass in CH1004</p> <p>Level 2: 60 credits comprising passes at 11 or better in CH2101, either CH2102 or CH2103</p> <p>Level 3: 60 credits comprising 3 from (CH3512, CH3612, CH3711, CH3521, CH3721, CH3431), 30 credits from (CH3511, CH3611, CH3712, CH3621, CH3441)</p> <p>Level 4(H): 80 credits comprising CH4442, 2 from (CH4511, CH4611, CH4711, CH4612, CH4712), 2 from (CH4512, CH4613, CH4713)</p>
<p>(B.Sc. Honours): Chemistry and Geoscience</p>	<p>Chemistry element of Joint Honours Degree (B.Sc. Honours): Level 1: 40 credits comprising Pass or bypass for CH1001, pass in CH1004</p> <p>Level 2: 60 credits comprising passes at 11 or better in CH2101, either CH 2102 or CH2103</p> <p>Level 3: 60 credits comprising 3 from (CH3512, CH3612, CH3711, CH3521, CH3721, CH3431), 30 credits from (CH3511, CH3611, CH3712, CH3621, CH3441)</p> <p>Level 4(H): 80 credits comprising CH4442, CH4512, 2 from (CH4511, CH4611, CH4711, CH4612, CH4712), 1 from (CH4613, CH4713)</p>
<p>(B.Sc. Honours): Chemistry with Catalysis</p>	<p>Chemistry with Catalysis (B.Sc. Honours): Level 1: 120 credits comprising pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules.</p> <p>Level 2: 60-90 credits comprising Passes at 11 or better in CH2101 and either or both of CH2102 and CH2103</p> <p>Level 3: 120 credits comprising CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3441.</p> <p>Level 4(H): 120 credits comprising CH4461, CH4442, CH5411, CH5511, CH5512, 2 from (CH4512, CH4613, CH4713), 1 from (CH4511, CH4611, CH4711), either CH4612 or CH 4712</p> <p>Other Information: The Single Honours course is recognised by the Royal Society of Chemistry (RSC) for professional membership.</p>

Chemistry

Degree Programmes	Programme Requirements at:
<p>(B.Sc. Honours): Chemistry with Materials Chemistry</p>	<p>Chemistry with Materials Chemistry (B.Sc. Honours): Level 1: 120 credits comprising pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules.</p> <p>Level 2: 60 credits comprising passes at 11 or better in CH2101 and CH2102 together with two approved modules from Chemistry or another School</p> <p>Level 3: 120 credits comprising CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3441</p> <p>Level 4(H): 120 credits comprising CH4461, CH 4712, CH4713, CH4442, CH5411, CH5712, CH5515, 2 from (CH4511, CH4611, CH4711</p> <p>Other Information: The Single Honours course is recognised by the Royal Society of Chemistry (RSC) for professional membership.</p>
<p>(B.Sc. Honours): Chemistry with Medicinal Chemistry</p>	<p>Chemistry with Medicinal Chemistry: Level 1: 120 credits comprising pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules.</p> <p>Level 2: 60 credits comprising passes at 11 or better in CH2101 and CH2103, together with 60 further credits from Chemistry or another School</p> <p>Level 3: 120 credits comprising CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3441.</p> <p>Level 4(H): 120 credits comprising CH4461, CH4442, CH5411, CH4612, CH4613, CH4611, 1 from (CH4511, CH4711), 1 from (CH4512, CH4713), 1 from (CH5612-4).</p> <p>Other Information:The Single Honours course is recognised by the Royal Society of Chemistry (RSC) for professional membership.</p>
<p>(B.Sc. Honours): Chemistry with French[^] or German[^]</p> <p>[^]also available as 'with Integrated Year Abroad Degrees'</p>	<p>Chemistry element of Major Degree with French or German (B.Sc. Honours): Level 1: 40 credits comprising pass or bypass for CH1001, pass in CH1004,</p> <p>Level 2: 60 credits comprising passes at 11 or better in CH2101 and either CH2102 or CH2103</p> <p>Level 3: 90 credits comprising CH 3441, and 70 credits from (CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3431)</p> <p>Level 4(H): 90 credits comprising CH4442, 5 from (CH4511, CH4611, CH4711, CH4512, CH4613, CH4713, CH4461, CH5411)</p> <p>Other Information:The BSc.degree is recognised by the Royal Society of Chemistry (RSC) for professional membership.</p>

Degree Programmes	Programme Requirements at:
<p>(B.Sc. Honours): Chemistry with Pharmacology</p>	<p>Chemistry with Pharmacology (B.Sc. Honours):</p> <p>Level 1: Chemistry element: 40 credits comprising a pass or bypass for CH1001, pass in CH1004 and 2 other level 1000 modules.</p> <p>Biology element: Passes in or exemption from BL1001, BL1201. Passes in or exemption from BL1003 and BL2007 are also required for entry to all Honours courses in the School of Biology</p> <p>Level 2: Chemistry element: 60 credits comprising passes at 11 or better in CH2101, CH2103</p> <p>Biology element: 60 credits comprising any two of BL2201, BL2202, BL2006</p> <p>Level 3: 60 credits from (CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3441), and 40 credits from BL3004, BL3007</p> <p>Level 4(H) and Level 5: 50 credits comprising CH4461, CH4441, and 70 credits from CH5411, CH4511, CH4611, CH4711, CH4512, CH4613, CH4713, CH5512, CH5513, CH5713, CH4612 CH471</p> <p>Other Information: The Single Honours course is recognised by the Royal Society of Chemistry (RSC) for professional membership. The project (CH4442) will be supervised jointly by staff from Chemistry and Biology.</p>
<p>(M.Chem. Honours): Chemistry (M.Chem) 5 years</p>	<p>Chemistry (M.Chem.) Degree:</p> <p>Level 1: 120 credits comprising pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules</p> <p>Level 2: 90 credits comprising Passes at 15 or better in CH2101, CH2102 and CH2103 together with 30 credits from another School</p> <p>Level 3: 120 credits comprising CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3441</p> <p>Level 4(H): 120 credits comprising CH4511, CH4611, CH4711, CH4512, CH4613, CH4713, CH4442, CH5411, 1 of (CH4612, CH4712)</p> <p>Level 5: 120 credits comprising CH5511, CH5611, CH5711, CH5461, CH5441, 4 from (CH5512-5, CH5612-4, CH5712-5).</p> <p>Other Information: The M. Chem.degree is recognised by the Royal Society of Chemistry (RSC) for professional membership.</p>
<p>(M.Chem. Honours): Chemistry (Medicinal) with External Placement (M.Chem.) 5 years</p>	<p>Chemistry (Medicinal) with External Placement (M.Chem):</p> <p>Level 1: 120 credits comprising pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules</p> <p>Level 2: 60 credits comprising Passes at 15 or better in CH2101 and CH2103 together with 60 further credits from Chemistry or another School</p> <p>Level 3: 120 credits comprising CH3511, CH3512, CH3611, CH3612, CH3613, CH4612, CH3521, CH3621, CH4613, CH3432, CH3441</p> <p>Level 4(H): 120 credits comprising CH4441, CH4451.</p> <p>Level 5: 120 credits comprising CH5615, CH5511, CH5611, CH5462, CH5441, CH5411, 3 from (CH5513, CH5612-4).</p> <p>Other Information: The M. Chem.degree is recognised by the Royal Society of Chemistry (RSC) for professional membership.</p>

Chemistry

Degree Programmes	Programme Requirements at:
<p>(M. Chem. Honours): Chemistry with External Placement (M.Chem) 5 years</p>	<p>Chemistry with External Placement (M.Chem) 5 years: Level 1: 120 credits comprising pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules</p> <p>Level 2: 90 credits comprising passes at 15 or better in CH2101, CH2102 and CH2103 together with 30 credits from another School</p> <p>Level 3: 120 credits comprising CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3431, CH3441</p> <p>Level 4(H): 120 credits comprising CH4441, CH4451.</p> <p>Level 5: 120 credits comprising CH5511, CH5611, CH5711, CH5461, CH5441, 4 from (CH5411, CH5512-5, CH5612-4, CH5712-5).</p> <p>Other Information: The M. Chem.degree is recognised by the Royal Society of Chemistry (RSC) for professional membership.</p>
<p>(M.Chem. Honours): Chemistry with French (M. Chem.) 5 years</p>	<p>Chemistry with French (M Chem Honours) (5 year degree) : Level 1: 120 credits comprising Pass or bypass for CH1001, pass in CH1004 and 4 other level 1000 modules</p> <p>Level 2: 90 credits comprising Passes at 15 or better in CH2101 and CH2102 or CH2103</p> <p>Level 3: 90 credits comprising CH3441, and 70 credits from (CH3511, CH3512, CH3611, CH3612, CH3711, CH3712, CH3521, CH3621, CH3721, CH3411)</p> <p>Level 4(H): 90 credits from CH4441</p> <p>Level 5: 50 credits from CH5441 and CH5411, and 40 credits from (CH5461, 4 from (CH5511-5, CH5611-4, CH5711-5).</p> <p>Other Information The M. Chem.degree is recognised by the Royal Society of Chemistry (RSC) for professional membership.</p>
<p>(M.Sci. Honours): Chemistry and Physics (M.Sci. Honours) 5 year Degree</p>	<p>Chemistry element of Chemistry-Physics M.Sci. Degree: Level 1: 40 credits comprising a pass or bypass in CH1001, CH1004</p> <p>Level 2: 60 credits comprising CH2101, either CH2102 or CH2103</p> <p>Level 3: 80 credits comprising CH3512, CH3611, CH3711, CH3712, CH3721, CH3431, CH3441</p> <p>Level 4(H): 40 credits comprising CH4711, CH4712, CH4512, CH4713, PH4021, PH4023</p> <p>Level 5: 40 credits from CH5441 or 45 credits from PH5101, at least 30 credits from CH5512, CH5514, CH5515, CH5712-CH5715</p>

Modules

Chemistry (CH) Modules

CH1001 Chemistry I : Foundation

Credits: 20.0 Semester: 1

Prerequisites: Higher Chemistry or A-level Chemistry.

Description: This module provides a sound foundation in the basic principles of chemistry. Lectures will deal with a range of topics including atomic structure, ionic and covalent bonding, determination of molecular structure, metals and non-metals and their simple compounds, states of matter, and energy changes during reactions. The laboratory work involves some basic chemical techniques and includes examples of synthesis and measurement.

Class Hour: 11.00 am and 2.00 - 5.00 pm on one afternoon

Teaching: Five lectures and one 3 hour practical

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CH1002 Chemistry II : Chemistry, People and the Environment

Credits: 20.0 Semester: 1

Prerequisites: Higher Chemistry or A-level Chemistry

Description: This module aims to show the tremendous impact that chemistry has on everyone's life. The aim is to make students aware of the importance of chemicals and the consequences for society of environmental changes, the effect on the earth's resources etc. It is a general course of interest to all students. Topics such as organic raw materials, energy and fuels, chemistry in food production and in medicine, case studies of selected elements, environmental chemistry, forensic chemistry and the impact of solving the structure of the human genome are discussed. The laboratory work involves some basic chemical techniques and includes examples of synthesis and measurement.

Class Hour: 12.00 noon and 2.00 - 5.00 pm on one afternoon

Teaching: Five lectures and one 3 hour practical

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CH1004 Chemistry IV : Organic and Biological Chemistry

Credits: 20.0 Semester: 2

Prerequisites: Higher Chemistry, A-level Chemistry or CH1001

Description: This module provides the groundwork of basic organic chemistry and biological chemistry. The organic chemistry course covers the synthesis, properties and reactions of simple organic compounds. Chirality and stereochemistry along with NMR, IR and mass spectrometry are covered at an elementary level. The chemistry of carbohydrates, lipids, amino acids, peptides and proteins is discussed along with topics such as co-ordination chemistry, transition metals and metalloproteins. The pH of acids, bases, salts and buffer solutions is discussed. Laboratory work covers organic synthesis, spectroscopic and chromatographic methods of analysis along with some physicochemical measurements.

Class Hour: 11.00 am and 2.00 - 5.00 pm on one afternoon

Teaching: Five lectures and one 3 hour practical

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

Chemistry

CH1005 Chemistry V : Modern Materials

Credits: 20.0 Semester: 2

Prerequisites: Higher Chemistry or A-level Chemistry.

Description: This module introduces students to the wide range of materials used today. Students will learn how structure and properties are related for materials such as metals, alloys, ceramics, semiconductors, polymers, composites etc. The module will be of particular interest to students of Physics and Geology as well as to Chemists. The laboratory work incorporates studies of materials and measurements of properties of materials met in lecture courses.

Class Hour: 10.00 am and 2.00 - 5.00 pm on one afternoon

Teaching: Five lectures and one 3 hour practical

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CH1201 Introductory Organic Chemistry

Credits: 10.0 Semester: 1

Prerequisites: Direct entry into Level 2000

Anti-requisites: CH1004, CH2201

Description: This module provides an introduction to Organic Chemistry with an emphasis on functional group chemistry. Reactions are rationalised by consideration of reaction mechanisms. The concepts of stereochemistry and of spectroscopic methods of structure determination are introduced.

Class Hour: 9.00 am

Teaching: Four lectures and one tutorial

Assessment: 1 Hour Examination = 100%

Re-Assessment: 1 Hour Examination = 100%

CH2101 Chemistry & Environmental Chemistry

Credits: 30.0 Semester: 1

Prerequisites: Advanced Higher, A-level or CH1001, CH1004

Description: The module includes lectures on transition-metal chemistry, atmospheric chemistry, kinetics of reactions in the gas phase and in solution, bonding and selected topics in organic chemistry. The laboratory component includes practical training in both analytical and environmental chemistry.

Class Hour: 11.00 am Monday, Wednesday, Thursday and Friday and two afternoons 2.00 – 5.00 pm.

Teaching: 4 hours of lectures, 6 hours of laboratories, tutorials and workshops

Assessment: Continuous Assessment = 40%, 3 Hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 3 Hour Examination = 60%

CH2102 Chemistry & Materials Chemistry

Credits: 30.0 Semester: 2

Prerequisites: CH1001, CH1004 or CH2101

Description: The module includes lectures on structural chemistry, main-group chemistry, organic materials chemistry, zeolites and microporous solids and an introduction to quantum chemistry. The laboratory component includes practical training in both chemical measurements and materials chemistry.

Class Hour: 11.00 am Monday, Wednesday, Thursday and Friday and two afternoons 2.00 - 5.00 pm.

Teaching: 4 hours of lectures, 6 hours of laboratories, tutorials and workshops

Assessment: Continuous Assessment = 40%, 3 Hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 3 Hour Examination = 60%

CH2103 Chemistry & Medicinal Chemistry

Credits:	30.0	Semester:	2
Prerequisites:	(CH1001, CH1004) or CH2101 (+ CH1201 if Direct entrant to Level 2000)		
Description:	The module includes lectures on organic chemistry, chemical equilibria and thermodynamics, metals in biology, natural product chemistry, medicinal chemistry, and drug design. The laboratory component includes practical training in both synthetic and medicinal chemistry.		
Class Hour:	12 noon and two afternoons 2.00 – 5.00 pm.		
Teaching:	4 hours of lectures, 6 hours of laboratories, tutorials and workshops		
Assessment:	Continuous Assessment = 40%, 3 Hour Examination = 60%		
Re-Assessment:	Continuous Assessment = 40%, 3 Hour Examination = 60%		

CH2201 A First Course in Organic Chemistry

Credits:	20.0	Semester:	1
Prerequisites:	Available to non-graduating students only		
Anti-requisites:	CH1004, CH1201		
Description:	This module is an introductory course in Organic Chemistry. It covers aspects of structure, bonding and stereochemistry in Organic Chemistry. The syllabus includes the chemistry of alkanes, simple cycloalkanes, alkenes and alkynes together with functional group chemistry, largely that of singly-bonded functional groups. The chemistry is discussed and rationalised with reference to reaction mechanisms. The lecture course is complemented by a laboratory course.		
Class Hour:	9.00 am		
Teaching:	Four lectures, two seminars, one tutorial, one or two practical classes. In addition a total of 3 or 4 half day visits to hospitals.		
Assessment:	Continuous Assessment = 40%, 2 Hour Examination = 60%		
Re-Assessment:	Continuous Assessment = 20%, 2 Hour Examination = 80%		

The details of the Honours modules – that is 3000, 4000(H) and 5000 level modules – which relate to the programmes listed in this section, are available in the Honours Course Catalogue.

