

BSC (HONS) CHEMISTRY

Overview

NFQ Level 8, Major Award

Students may enter the Second Science Chemistry programme from the following First Science entry streams: Biological and Chemical Sciences (CK402 entry) (<https://ucc-ie-public.courseleaf.com/programmes/bscbf/>) and Chemical Sciences (CK406 entry). (<https://ucc-ie-public.courseleaf.com/programmes/bsccm/>) Students must have passed First Science and both chemistry modules (CM1200 and CM1201). There are 60 places in total available in each year.

Quotas

In filling the quotas, places will be allocated to students passing first year CK406 at the First University Examination in Science at the Summer Examination or at the Autumn Supplemental Examination who opt to enter the programme. Remaining places will be allocated to students passing first year CK402 at the First University Examination in Science at the Summer Examination in the first year of registration who opt to enter the programme in order of merit of total marks of Chemistry (CM1200 and CM1201) obtained thereat. Remaining places, if any, will be filled in order of merit without distinction as to when the examination was completed. The decision as to the filling of such remaining places will be made after the results of the Autumn Supplemental Examination are known. The quotas for entry to the various degree programmes in Second Science are as follows:

Second Degree Outlet	Quota
Chemistry	60
Chemistry of Pharmaceutical Compounds	20
Chemistry with Forensic Science	20
Chemical Physics	10

- Chemistry of Pharmaceutical Compounds (<https://ucc-ie-public.courseleaf.com/programmes/bsccpc/>)
- Chemistry with Forensic Science (<https://ucc-ie-public.courseleaf.com/programmes/bsccfs/>)
- Chemical Physics (<https://ucc-ie-public.courseleaf.com/programmes/bsccpy/>)

The Second Science programme consists of modules of Chemistry to the value of **40** credits and additional modules to the value of **20** credits offered by cognate departments.

Students passing Second Science enter the honours degree programme in Chemistry in **Third Year**. The Third Year programme consists of core modules of Chemistry (**60** credits).

The Fourth Year programme consists of core modules of Chemistry to the value of **40** credits, one optional Chemistry module to the value of **5** credits and the module CM4206 (15 credits), which contains research projects, continuous assessments and the problem paper examination.

Elective Modules

In Second Year no more than **15** credits may be selected from any elective subject. The selection of elective modules in Second Science may depend on the student having taken the corresponding prerequisite elective module(s) in First Science.

Table 3: Chemistry

First Science	Second Science	Third Science	Fourth Science
CK402 or CK406	CM (40 credits)	CM (60 credits)	BSc Single Honours
CM1200 and CM1201	+ 20 credits		CM (45 credits)
	chosen from: BC/MA/ML/PY/ST		+ projects (15 credits)

Second Year - Chemistry

Optional Module - CM0004 (5 credits)

Students interested in taking this optional module must note their interest to the module co-ordinator in the first week of Semester 1. Places are limited and will be allocated based on results obtained in First Year and subject to the approval of the Programme Co-ordinator. CM0004 is not included for progression to subsequent year and is not counted toward the final degree award. The result obtained in CM0004 will be recorded on the student's transcript.

Transfer from Second Science Chemistry to Biochemistry

Students who have taken Second Science Chemistry with BC2001, BC2002 and ML2001/ML2901 may apply to the Head of the School of Biochemistry and Cell Biology by the **First Friday in August** to transfer to the Third Science Biochemistry Degree programme. Awarding of places is subject to the approval of the Head of the School of Biochemistry and Cell Biology and will be included in the Biochemistry quota of 30.

Please complete the transfer form available here and submit to the School of Biochemistry and Cell Biology Administration office 3.19, Western Gateway Building, Western Rd, UCC.

Third Year - Chemistry

Year Abroad

On the recommendation of the Head of the School of Chemistry and subject to the approval of the College, a student may be permitted to undertake the Third Year of his/her BSc studies at an approved institution abroad following a study programme equivalent to **60** credits. Where a language other than English is the language of instruction at the approved host institution, up to **20** credits of the programme may be dedicated to formal study of the language of instruction. The detailed programme of study shall be proposed by the student in consultation with the approved host institution and the Programme Co-ordinator of the BSc (Chemistry) degree programme, and shall require the approval of the Head of the School of Chemistry.

The student will be examined by the approved host institution. A student who achieves a pass standard, as defined by the approved host institution, will be deemed to have passed the Third University Examination in Chemistry. A student who fails to achieve a pass standard, as defined by the approved host institution, will be deemed to have failed the Third University Examination in Chemistry and will be eligible to undertake the Third Year programme at UCC in a Repeat Year. The detailed transcript of results will be communicated by the host institution to the Autumn Examination Board, UCC, and will form part of the student's formal academic record.

Students who have passed Third Year may choose not to proceed to Fourth Year and may opt instead to be conferred with a BSc Ordinary Degree.

Optional Module - CM0005 (5 credits)

Students interested in taking this optional module must note their interest to the module co-ordinator in the first week of Semester 2. Students who have passed the prerequisite CM0004 will be allocated a place, subject to the approval of the Programme Co-ordinator. CM0005 is not included for progression to subsequent year and is not counted toward the final degree award. The result obtained in CM0005 will be recorded on the student's transcript.

Transfer from Second Science Chemistry to Biochemistry

Students who have taken Second Science Chemistry with BC2001, BC2002 and ML2001/ML2901 may apply to the Head of the School of Biochemistry and Cell Biology by the **First Friday in August** to transfer to the Third Science Biochemistry Degree programme. Awarding of places is subject to the approval of the Head of the School of Biochemistry and Cell Biology and will be included in the Biochemistry quota of 30.

Please complete the transfer form available here and submit to the School of Biochemistry and Cell Biology Administration office 3.19, Western Gateway Building, Western Rd, UCC.

BSc Ordinary Degree - NFQ Level 7, Major Award

Students who pass Third Year may choose not to proceed to Fourth Year and may opt instead to be conferred with a BSc Ordinary Degree (<https://ucc-ie-public.courseleaf.com/programmes/bscpas/>).

Fourth Year - Chemistry

In Fourth Science, students take modules to the value of **60** credits as follows: Core modules to the value of **55** credits and an elective module to the value of **5** credits.

Programme Requirements

For information about modules, module choice, options and credit weightings, please go to Programme Requirements (p. 2).

Programme Requirements

Code	Title	Credits
Year 1		60
CK402 (https://ucc-ie-public.courseleaf.com/programmes/bscbf/)		
or		
CK406 (https://ucc-ie-public.courseleaf.com/programmes/bsccm/)		
Year 2		
Students take 60 credits as follows - all listed core modules (40 credits) and 20 credits of elective modules:		
<i>Core Modules</i>		
Chemistry		
CM2001	Main Group and Transition Element Chemistry	5
CM2002	Fundamentals of Organic Chemistry	5
CM2003	Energetics and Kinetics	5
CM2004	States of Matter	5
CM2005	Structures and Reactions of Main Group Compounds	5
CM2006	Aromatics, Carbonyls and Alkenes	5
CM2007	Spectroscopy	5
CM2008	Structure, Bonding and Quantum Mechanics	5
<i>Elective Modules</i>		
Students take modules to the value of 20 credits from the following: 20		
Biochemistry		

BC2001	Biomolecules (5)	
BC2002	Principles of Metabolic Pathways (5)	
<i>Molecular Biology</i>		
ML2901	Introductory Molecular Biology (5)	
<i>Mathematics</i>		
MA1012	Mathematical Methods II (5) ¹	
MA2071	Multivariable Calculus (5)	
<i>Physics</i>		
PY3011	Environmental Physics (5)	
<i>Statistics</i>		
ST2001	Introduction to Biostatistics (5)	
<i>Forensic Science</i>		
CM2009	Introduction to Forensic Science (5) ²	
<i>Optional Module</i> ³		
CM0004	Introduction to Validation (5)	
Year 3		
Students take 60 credits as follows:		
<i>Core Modules</i>		
CM3001	Organic Synthesis, Intermediates and Heterocycles	5
CM3004	Structure and Reactivity of Organic Compounds	5
CM3016	Molecules and Radiation	5
CM3017	Reaction Kinetics and Electrochemistry	5
CM3021	Inorganic Chemistry	10
CM3024	Analytical Chemistry	10
CM3025	Materials Chemistry	5
CM3028	Scientific Communication and Information Literacy Skills	5
CM3102	Introduction to Pharmaceutical Chemistry	5
CM3104	Environmental Chemistry and Analysis	5
<i>Optional Module</i>		
CM0005	Validation Science (5) ⁴	
Year 4		
Students take 60 credits as follows – all listed core modules (55 credits) and 5 credits of elective modules:		
<i>Core Modules</i>		
CM4001	Advanced Organic Synthesis and Reactivity	5
CM4017	Advanced Inorganic Chemistry Part 1	5
CM4018	Advanced Inorganic Chemistry Part 2	5
CM4019	Lasers, Photochemistry & Spectroscopy	5
CM4020	Interfaces & Modelling	5
CM4026	Advanced Analytical Chemistry Part 1	5
CM4027	Advanced Analytical Chemistry Part 2	5
CM4103	Heterocycles, Biosynthesis and Asymmetric Synthesis	5
CM4206	Chemistry Research Projects	15
<i>Elective Modules</i>		
Students take 5 credits from the following: 5		
CM4025	Advanced Nano Materials (5)	
CM4108	Advanced Pharmaceutical Chemistry (5)	
CM4112	Atmospheric Chemistry and Air Pollution (5)	
Total Credits		240

¹ Students who took MA1012 in First Year cannot take this module again in Second Year.

² CM2009 is available only to students who took MA1011 Mathematical Methods I and MA1012 in First Year and subsequently cannot make up the required 20 credits from the above options.

³ Students interested in taking this optional module must note their interest to the module co-ordinator in the first week of Semester 1. Places are limited and will be allocated based on results obtained in First Year and subject to the approval of the Programme Co-ordinator. CM0004 is not included for progression to subsequent year and is not counted toward the final degree award. The result obtained in CM0004 will be recorded on the student's transcript.

⁴ Students interested in taking this optional module must note their interest to the module co-ordinator in the first week of Semester 2. Students who have passed the prerequisite CM0004 will be allocated a place, subject to the approval of the Programme Co-ordinator. CM0005 is not included for progression to subsequent year and is not counted toward the final degree award. The result obtained in CM0005 will be recorded on the student's transcript.

Examinations

Full details and regulations governing Examinations for each programme will be contained in the *Marks and Standards Book* and for each module in the *Book of Modules*.

Programme Learning Outcomes

Programme Learning Outcomes for BSc in Chemistry (NFQ Level 8, Major Award)

On successful completion of this programme, students should be able to:

- Identify, formulate, analyse and solve chemistry problems;
- Outline fundamental aspects of chemistry;
- Design and carry out an experiment to test a hypothesis or theory in chemistry;
- Prepare written laboratory reports that provide a description of the experiment, explain the experiment and reasoning clearly, and provide an appropriate conclusion;
- Communicate effectively with the chemistry communities.