

Programme Information		
Programme Title	Programme Code	HECoS Code
BSc Chemical Sciences and Management*	F1N2	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
BSc Honours degree	3 years	Full time	N/A	180	360
Diploma of Higher Education**	N/A	N/A	N/A	120	240
Certificate of Higher Education**	N/A	N/A	N/A	60	120

*This is a non-accredited degree not available for entry, students may transfer onto this degree in year 1 or 2. All students must apply to and join an accredited BSc or MSci programme.

**The Certificate/Diploma of Higher Education in Chemistry are non-accredited exit awards and are not available for entry. All students must apply to and join a BSc or MSci programme.

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Natural Sciences
Teaching Institution	Imperial College London	Department	Chemistry
Associateship	Royal College of Science	Main Location(s) of Study	South Kensington Campus, White City Campus
External Reference			
Relevant QAA Benchmark Statement(s) and/or other external reference points	Masters Chemistry degree		
FHEQ Level	BSc – Level 6 - Honours		
EHEA Level	1st Cycle		
External Accreditor(s) (if applicable)			
External Accreditor 1:	N/A		
Accreditation received:	N/A	Accreditation renewal:	N/A

Collaborative Provision			
Collaborative partner	Collaboration type	Agreement effective date	Agreement expiry date
N/A	N/A	N/A	N/A
Specification Details			
Programme Lead		Prof. Don Craig	
Student cohorts covered by specification		2023-24 entry	
Date of introduction of programme		October 19	
Date of programme specification/revision		April 23	

Programme Overview
<p>Studying the BSc Chemistry with Management programme you will be an active participant engaging with a rigorous modern student-centred curriculum in a dynamic and world-leading chemistry department. Your final year is spent in the Business School, which is triple-accredited by AMBA, EQUIS and AACSB.</p> <p>You will develop a thorough and interconnected understanding of core chemistry through studying fundamental chemistry topics across the sub-disciplines of Inorganic, Organic, Physical, Analytical, Synthetic and Computational chemistry. Through an extensive laboratory programme you will learn to synthesise chemicals and to study chemical systems through experimental measurements and computational models, including building instrumentation and programming. You will design your own experiments, and thereby learn a range of broader research and transferrable skills from finding reliable information, to designing an experimental investigation, and analysing and communicating the results.</p> <p>In your final year in the Business School the core modules including accounting, entrepreneurship and marketing equip you with an understanding of the management of the operating environment of business organisations, and prepare you for a career in management roles. The balanced programme of formal teaching, case studies and individual and group work is aimed at developing your personal, conceptual and analytical skills, as well giving you the chance to broaden your academic experience and mix with students from other disciplines.</p> <p>Your core chemistry studies will be complemented by your choice of elective ancillary module in years 1 and 2. Further, extra-curricular, opportunities include access to the Advanced Hack Space and Invention Rooms at White City, initiatives such as the faculty's Make A Difference competition, and summer research projects through the Undergraduate Research Opportunities Programme.</p> <p>You will learn from a range of teachers: peers, postgraduate students, teaching- and research- focussed academic staff up to professorial level, including world leaders in their fields. You will build collaborative learning relationships with a range of people, and a personal tutor will oversee your personal and intellectual development. Most teaching will be at South Kensington, but travel to the White City campus will be necessary for some activities.</p> <p>Graduates of the chemistry department go on to a range of employments and further study, including PhD study, technical consultancy, research and development, accountancy, marketing, business activities and medical and law-based graduate training.</p>
Learning Outcomes
<p>Chemistry degree programmes have six broad Intended Learning Outcomes. Students will be able to:</p> <ol style="list-style-type: none"> 1. Apply chemistry knowledge and understanding 2. Use experimentation to find chemical information and create new chemical knowledge and technologies 3. Use reliable sources to find chemical information 4. Analyse and interpret data and solve problems creatively in chemistry and wider contexts

5. Communicate chemistry

6. Demonstrate intellectual and personal development as a university learner and citizen to enable purposeful and responsible engagement with the world

and employ the transferrable skills and core competencies expressed in the [Imperial Graduate Attributes](#)

On this programme students take the first two years of the BSc Chemistry degree, studying to FHEQ level 5, and will achieve the learning outcomes detailed for the Diploma of Higher Education with respect to their chemistry studies. Students study at FHEQ level 6 in their Management year.

Graduates of the Chemistry with Management programmes will additionally be able to demonstrate knowledge and understanding of:

- The management of innovation in a modern organisation including the implications of technology
- The roles and behaviour of people working in organisations;
- The key issues in contemporary human resource management and an appreciation of the theory and research which underpins these issues
- The strategic decisions faced by the top management team of an organisation
- The responsibility of business within a framework of sustainability, ethics and corporate governance
- The techniques of financial and managerial accounting and their relevance to the broader issues of management decision-making and control
- A theoretical framework for analysing key financial markets and an understanding of how they interact with the key decisions of firms
- The business and economic environment including the ways in which the government responds and shapes the economic environment and how this can be anticipated
- The key marketing concepts and principles of marketing analysis
- The management problems that are either unique to international business or arise in particular complex or acute forms in business that span national boundaries
- The issues associated with evaluating the viability of new technologies, new products or services in the fields of medicine and science

Upon completion of a Diploma of Higher Education you will, in addition to the Certificate learning outcomes (below), be able to:

- **Apply chemistry knowledge and understanding:**
choose appropriate representations to describe familiar and unfamiliar chemical systems and processes; explain concepts and theories and apply synoptic understanding; explain and predict properties, behaviours and trends with an appreciation of the limitations of familiar models and their position in the historical development of the discipline
- **Use experimentation to find chemical information and create new chemical knowledge and technologies:**
assess risks and hazards of self-determined lab work; use advanced techniques and basic computational modelling; obtain reliable and accurate and precise data
- **Use reliable sources to find chemical information:**
identify appropriate reliable texts to find information and to extend syllabus learning; extract meaning from journal articles; use reference management software
- **Analyse and interpret data and solve problems creatively in chemistry and wider contexts:**
use their own synoptic knowledge and understanding of theoretical models and the results of information searches, experimental work and data analyses to solve well-defined problems in real-world contexts
- **Communicate chemistry:**
in a mode appropriate to the designated audience
- **Demonstrate intellectual and personal development as a university learner and citizen to enable purposeful and responsible engagement with the world:** apply techniques of independent learning; contribute to the education of others within communities of learning

Upon completion of a Certificate of Higher Education you will be able to:

- **Apply chemistry knowledge and understanding:**

use various representations as directed to describe familiar chemical systems and processes; explain concepts; use concepts, theories and models to explain and predict properties, behaviours and trends

- **Use experimentation to find chemical information and create new chemical knowledge and technologies:**

assess risks and hazards of lab work; apply basic techniques to work safely and purposefully in the lab to obtain meaningful data; carry out basic computational operations

- **Use reliable sources to find chemical information:**

use recommended texts to find information and to reinforce syllabus learning; extract with guidance appropriate data from journal articles; correctly cite sources of information

- **Analyse and interpret data and solve problems creatively in chemistry and wider contexts:**

use their own knowledge and understanding of theoretical models, and results of information searches, their own experimental work and data analyses, to solve well-defined problems in familiar contexts

- **Communicate chemistry:**

communicate scientific ideas in accurate English clearly through a variety of defined modes using correct terminology and effective presentation of data

- **Demonstrate intellectual and personal development as a university learner and citizen to enable purposeful and responsible engagement with the world:**

apply techniques of university learning; self-reflect on what has been learned from received teaching; build collaborative learning relationships with peers and tutors and integrate into the university community

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: www.imperial.ac.uk/students/academic-support/graduate-attributes

Entry Requirements

Academic Requirement	<p>The minimum requirements for entry to this degree programme, and <i>typical offers</i>, are listed below:</p> <p>A-Level: AAA in Chemistry, Mathematics, plus a third subject, preferably Biology, Physics or Economics. <i>Typical offer:</i> A*AA-A*A*A. General Studies and Critical Thinking are not accepted.</p> <p>IB: 38 points overall, with HL6 in Chemistry, HL6 in Mathematics plus HL6 in a third subject as above. <i>Typical offer:</i> 39 points, with 7, 6, 6 at Higher Level.</p> <p>For further information on entry requirements, please go to www.imperial.ac.uk/study/apply/undergraduate/entry-requirements/</p>
Non-academic Requirements	N/A
English Language Requirement	<p>Higher requirement</p> <p>Please check for other Accepted English Qualifications</p>
Admissions Test/Interview	<p>All applications through UCAS are vetted internally and short-listings are made for interview. There is no discrimination by date of application. Academic interviews are conducted in person by two academic staff or <i>via</i> Skype by one experienced academic staff member. You will be informed of the interview performance criteria in advance. Detailed written interview feedback and grading from interviewers is used, in conjunction with the application, to make an offer decision. There is no admissions test in use.</p> <p>Please see the following webpage for further information: www.imperial.ac.uk/chemistry/undergraduate/applying/</p>

The programme's competency standards documents can be found at: www.imperial.ac.uk/chemistry/undergraduate/courses/

Learning & Teaching Approach

Learning and Teaching Delivery Methods

The teaching and learning approach you will experience aims broadly that you gain an integrated understanding of chemistry and are able to apply this to solve real-world problems, and develop into a self-motivated, independent life-long learner. Teaching will include: lectures and other whole-cohort teaching sessions incorporating active learning (opportunities for you to apply your learning); discussions in tutorials in groups of about 8; supervised small group and individual project work; laboratory practicals in small groups, pairs or individually; placement in an academic research group for an independent research project. Throughout the degree you will undertake independent study and you may choose to work individually or with peers.

Overall Workload

Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary according to the optional modules you choose to study, the following gives an indication of how much time you will need to allocate to different activities at each level of the programme. At Imperial, each ECTS credit taken equates to an expected total study time of 25 hours. Therefore, the expected total study time is 1500 hours per year.

Typically, in years 1 and 2 you will spend in the order of 15% of your time on classroom teaching (around 230 hours), 15% in the laboratory, and 70% on independent study. Week-to-week your workload will fluctuate within reasonable limits, ie. you be more busy in some weeks than others. In later years the proportion of independent study increases to 80% in year 3.

Assessment Strategy

Assessment Methods

Your achievement of the intended learning outcomes of the programme will be supported by formative assessment and measured by a range of summative assessments.

Formative assessment opportunities will include digital resources for self-assessment, discussions in tutorials, in workshops and in the laboratory, and formative assignment submissions. Discussions with your personal tutor will address your intellectual and personal development and engagement.

Open- and closed- book examinations and tests will summatively assess your ability to apply chemistry knowledge and understanding, and to analyse and interpret data and solve problems (ILOs 1 and 4). Your performance in the lab will be an assessment also of your ability to use experimentation (ILOs 1,2,4). Oral exams (known as 'vivas') will additionally assess your ability to communicate chemistry (ILOs 1,4,5), and written reports, poster and oral presentations also your ability to find reliable chemical information (ILOs 1,3,4,5). Formal and informal groupwork, reflection on your learning from labs through the research skills passport, and structured self-reflective statements will assess your intellectual and personal development and engagement with the world (ILO 6).

Assessment mode	Year 1	Year 2	Year 3
Examination	75%	65%	50%
Coursework / Practical	25%	35%	50%

Academic Feedback Policy

You will receive verbal feedback on your understanding and performance through informal discussions with peers, GTAs and staff in labs, workshops and tutorials. You will generally receive immediate verbal feedback on your performance in oral exams and presentations. The department manages submission of written work electronically, and you will receive feedback comments on your work similarly, within 10 working days of submission. Following exams, general feedback on the performance of the cohort is made available, and in early

years you will receive individual feedback on your understanding through a scheduled discussion with a tutor, while in later years you can request feedback via your personal tutor.

The College's Policy on Academic Feedback and guidance on issuing provisional marks to students is available at:

www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

Re-sit Policy

The College's Policy on Re-sits is available at: www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/

Mitigating Circumstances Policy

The College's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/

Additional Programme Costs

This section should outline any additional costs relevant to this programme which are not included in students' tuition fees.

Description	Mandatory/Optional	Approximate cost
Laboratory Personal Protective Equipment (PPE)	Mandatory	PPE is provided at no cost by the department, and replaced as appropriate

Important notice: The Programme Specifications are the result of a large curriculum and pedagogy reform implemented by the Department and supported by the Learning and Teaching Strategy of Imperial College London. The modules, structure and assessments presented in this Programme Specification are correct at the time of publication but might change as a result of student and staff feedback and the introduction of new or innovative approaches to teaching and learning. You will be consulted and notified in a timely manner of any changes to this document.

Programme Structure ¹					
Year 1 – FHEQ Level 4 Students study all core modules. Students choose one elective from group A.					
Code	Module Title	Core/ Elective	Group	Term	Credits
CHEM40001	i-Engage	Core		Autumn- Summer	0
CHEM40002	Language of Chemistry	Core		Autumn- Spring	7.5
CHEM40004	Structure and Bonding: Atomic Structure to Molecular Orbitals	Core		Autumn	10
CHEM40003	Introduction to Spectroscopy	Core		Autumn	5
CHEM40006	Reactivity at Carbon Centres	Core		Spring	7.5
CHEM40007	The Reaction Toolkit: Thermodynamics and Kinetics	Core		Spring	5
CHEM40005	Chemistry of the Elements: Hydrogen to Uranium	Core		Spring	5
CHEM40008	Practical Chemistry 1	Core		Autumn- Summer	15
CHEM40010	Mathematics and Physics 1	Elective	A	Autumn- Spring	5
CHEM40009	Medicinal Chemistry 1	Elective	A	Autumn- Spring	5
	Horizons	Elective	A	Autumn- Spring	5
Credit Total					60
Year 2 - FHEQ Level 5 Students study all core modules. Students choose one elective from group A.					
Code	Module Title	Core/ Elective	Group	Term	Credits
CHEM50002	i-Engage 2	Core		Autumn- Summer	0
CHEM50003	Electronic States and Bonding	Core		Autumn	7.5
CHEM50001	Analysis of Molecules, Materials and Mixtures	Core		Autumn- Summer	7.5
CHEM50006	Solids, Liquids and Interfaces	Core		Spring- Summer	5

¹ **Core** modules are those which serve a fundamental role within the curriculum, and for which achievement of the credits for that module is essential for the achievement of the target award. Core modules must therefore be taken and passed in order to achieve that named award. **Compulsory** modules are those which are designated as necessary to be taken as part of the programme syllabus. Compulsory modules can be compensated. **Elective** modules are those which are in the same subject area as the field of study and are offered to students in order to offer an element of choice in the curriculum and from which students are able to select. Elective modules can be compensated.

CHEM50005	Chemistry of Molecular Systems	Core		Spring-Summer	5
CHEM50011	Macromolecules and Materials	Core		Spring-Summer	5
CHEM50007	Control and Selectivity in Molecular Synthesis	Core		Autumn	5
CHEM50004	Practical Chemistry 2	Core		Autumn-Summer	20
CHEM50008	Mathematics and Physics 2 ²	Elective	A	Autumn-Spring	5
CHEM50009	Medicinal Chemistry 2 ³	Elective	A	Autumn-Spring	5
	Horizons	Elective	A	Autumn-Spring	5
Credit Total					60

Year 3 FHEQ Level 6					
Students study all compulsory modules.					
Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
BUSI97178	Plagiarism Awareness	Compulsory	N/A	Autumn	0
BUSI60023	Accounting	Compulsory	N/A	Autumn	5
BUSI60033	Business Economics	Compulsory	N/A	Autumn	5
BUSI60025	Global Strategy	Compulsory	N/A	Autumn	5
BUSI60026	Organisational Behaviour and Human Resource Management	Compulsory	N/A	Autumn	5
BUSI60028	Marketing	Compulsory	N/A	Spring-Summer	5
BUSI60034	Innovation Management	Compulsory	N/A	Spring	5
BUSI60035	Finance and Financial Management	Compulsory	N/A	Spring-Summer	5
BUSI60027	Sustainable Business	Compulsory	N/A	Spring-Summer	5
BUSI60031	Entrepreneurship	Compulsory	N/A	Spring-Summer	5
BUSI60032	Research Methods and Practice	Compulsory	N/A	Autumn-Summer	15
Credit Total					60

² Maths and Physics 1 is prerequisite for Maths and Physics 2

³ Medicinal Chemistry 1 is prerequisite for Medicinal Chemistry 2

Progression and Classification

Progression

In order to progress to the next level of study, you must have passed all modules (equivalent to 60 ECTS) in the current level of study at first attempt, at resit or by a compensated pass.

The overall weighted average for each year must be 40.00%, including where a module(s) has been compensated, in order for you to progress to the next year of the programme.

Classification

The marks from modules in each year contribute towards the final degree classification.

In order to be considered for an award, you must have achieved the minimum number of credits at the required levels prescribed for that award and met any programme specific requirements as set out in the Programme Specification.

Your classification will be determined through:

- i) Aggregate Module marks for all modules
- ii) Year Weightings

For this award, Year 1 is weighted at 7.50%, Year 2 at 35.00%, Year 3 at 57.50%.

The College sets the class of undergraduate degree that may be awarded as follows:

- i) First 70.00% or above for the average weighted module results
- ii) Upper Second 60.00% or above for the average weighted module results
- iii) Lower Second 50.00% or above for the average weighted module results
- iv) Third 40.00% or above for the average weighted module results

Programme Specific Regulations

N/A

Supporting Information

The Programme Handbook is available from the department.

The Module Handbook is available from the department.

The College's entry requirements for postgraduate programmes can be found at:
www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/

The College's Quality & Enhancement Framework is available at:
www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance

The College's Academic and Examination Regulations can be found at:
www.imperial.ac.uk/about/governance/academic-governance/regulations

Imperial College is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a Supplemental Charter and Statutes was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of the College's Centenary, 8th July 2007, established the College as a University with the name and style of "The Imperial College of Science, Technology and Medicine".
www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/

Imperial College London is regulated by the Office for Students (OfS)
www.officeforstudents.org.uk/advice-and-guidance/the-register/

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for prospective and current students, academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.

Modifications

Description	Approved	Date	Paper Reference
N/A	N/A	N/A	N/A