BSc Chemistry with Management

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 intended as a reference point for prospective students, current students, external examiners and academic and support staff involved in delivering the programme and enabling student development and achievement.

Programme Information				
Award(s)	BSc			
Programme Title	Chemistry with Management			
Programme Code	F1NF			
Awarding Institution	Imperial College London			
Teaching Institution	Imperial College London			
Faculty	Faculty of Natural Sciences			
	Imperial College Business School			
Department(s)	Department of Chemistry			
	Imperial College Business School			
Associateship	Royal College of Science			
Mode and Period of Study	4 academic years, full-time			
Cohort Entry Points	Annually in October			
Relevant QAA Benchmark Statement(s) and/or other external reference points	Chemistry			
	Business and Management			
Total Credits	ECTS:	250	CATS:	500
FHEQ Level	Level 6			
EHEA Level	1st cycle			
External Accreditor(s)	Royal Society of Chemistry AMBA EQUIS AACSB International			

Specification Details	
Student cohorts covered by specification	2016/17 entry
Person(s) responsible for the specification	Dr. Bridgette Duncombe, Director of Undergraduate Studies (Chemistry)
	Ms. Veronica Russell, Teaching & Quality Manager (Business School)
Date of introduction of programme	-
Date of programme specification/revision	March 2017

Description of Programme Contents

The Chemistry with Management courses prepare chemistry graduates for management careers.

The four-year course offers three years of chemistry (exactly the same syllabus as the F100 BSc Chemistry degree course) followed by a year in Imperial College Business School.

Years one and two of the programme follows the same core course content supplemented by two ancillary modules that are designed for specific degree programmes. This structure allows many of our students the opportunity to transfer to a different degree programme at a later stage providing they have studied the appropriate ancillary subjects in year one.

Practical experience in the lab is a major part of all of Imperial's chemistry courses.

The business aspect of the programme aims to prepare students for a career in business management, management services or management consultancy in the private or public sectors in the UK, Europe or worldwide.

Learning Outcomes

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

Upon successful completion of the programme students should 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 operations and control of projects, production and service activities
- 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

Intellectual Skills:

- The ability to demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to the subject areas identified
- The ability to apply such knowledge and understanding to the solution of qualitative and quantitative problems mostly of a familiar nature
- The ability to recognise and analyse problems and plan strategies for their solution
- Skills in the evaluation, interpretation and synthesis of chemical information and data
- Skills in the practical application of theory using computer software and models
- Skills in communicating scientific material and arguments
- Information technology (IT) and data-processing skills, relating to chemical information and data.
- Analyse, interpret and evaluate new and/or abstract data and situations without guidance
- Use a wide range of appropriate techniques and transform data and concepts into novel solutions
- Read, interpret and analyse published accounts and to evaluate the well-being and potential of a company using ratio analysis
- Anticipate likely changes in policy and economic conditions given the current economic and political environment.

Practical Skills:

- Skills in the safe-handling of chemical materials, taking into account their physical and chemical properties including any specific hazards associated with their use and the ability to conduct risk assessments
- Skills required for the conduct of documented laboratory procedures involved in synthetic and analytical work, in relation to both inorganic and organic systems
- Skills in the monitoring, by observation and measurement, of chemical properties, events or changes, and the systematic and reliable recording and documentation thereof
- Skills in the operation of standard chemical instrumentation
- The ability to interpret and explain the limits of accuracy of their own experimental data in terms of significance and underlying theory.
- Give professional presentations
- Seek, interpret, present and use data effectively in decision-making
- Produce creative and realistic solutions to complex problems
- Use a range of different perspectives to analyse an organisation
- Identify key issues in human resource management and design a recruitment process and conduct a selection interview
- Communicate competently with numerical data
- Participate in managerial decision processes where accounting based information is an important input;

- Assess both the technological and market viability of an idea and select the most appropriate route to market
- Effectively use Information Technology

Transferable Skills:

- Communication skills, covering both written and oral communication
- Problem-solving skills, relating to qualitative and quantitative information
- Numeracy and mathematical skills, including such aspects as error analysis order-of-magnitude estimations, correct use of units and modes\ of data presentation
- Information retrieval skills, in relation to primary and secondary information sources, including information retrieval through online computer searches
- IT skills
- Interpersonal skills, relating to the ability to interact with other people and to engage in team working
- Time management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working
- Skills needed to undertake appropriate further training of a professional nature.

Entry Requirements		
Academic Requirement	Grade Requirement	Minimum AAA overall
	Subject Requirements	A in Chemistry A in Mathematics A in another subject. Preferred subjects are Biology, Economics or Physics.
	Excluded Subjects	General Studies
International Baccalaureate (IB)	Grade Requirement	Minimum **38** overall
	Subject Requirements	**7** in Chemistry at higher level **6** in Mathematics at higher level **6** in another specified subject at higher level (preferred subjects are Biology, Economics or Physics)
GCSE Requirements		Pass marks in Mathematics (typically grade B or above)
English Language Requirement		Standard requirement
Admissions Tests		Candidates may be asked to undertake an admissions test set by the College in order to provide additional information for the Admissions Tutor in support of an application.
Interview		Selected applicants only

The programme's competency standards documents can be found at:
http://www.imperial.ac.uk/chemistry/undergraduate/course-structure-and-content/

Learning & Teaching Strategy	
Scheduled Learning & Teaching Methods	• Lectures • Seminars • Tutorials • Practical workshops • Guided laboratory work • Problem classes • Field trips • Professional skills events • Formal presentations • Case studies • Group work exercises • Equipment/technique demonstrations • Practical classes and field work
E-learning & Blended Learning Methods	Virtual Learning Environment (VLE) is used extensively and includes: • Lecture material and lecture recordings • Pre-laboratory work including competency quizzes • On-line quizzes and material to support lecture material • Plagiarism and safety awareness materials imbedded in online lecture and lab modules • Pre-programme VLE modules • On-line discussion forums • Interactive content including video and module quizzes
Project and Placement Learning Methods	• Group project work • Research project
Assessment Strategy	
Assessment Methods	• Written examinations/tests • Oral presentations • Written reports • Coursework • Academic posters • Essays • Continuous assessments • Multiple Choice Tests • Formal Presentations • Reports • Case Studies • Participation • Literature report

Academic Feedback Policy
Department of Chemistry Students can expect to receive the academic feedback in the following ways: • Academic subject tutorials in small groups throughout years 1 and 2 • Scheduled meetings with personal tutors twice a term during Years 1 and 2 • Scheduled meetings with personal tutors once a term during Year 3 • Accompanying class tutorial sessions in year 3 • Feedback on lab scripts will be provided to students within two weeks of submission. • Provisional exam results are posted to Blackboard as soon as possible • A brief commentary on the cohort's performance on each exam paper including a histogram of the cohort's performance is posted on Blackboard • The year 3 research project involves regular update and feedback meetings with the project supervisor **Business School** The Business School aims to provide feedback to students on coursework within two weeks and to provide provisional examination grades six weeks from the examination date. With each returned coursework assignment, a written evaluation will be provided. General feedback to the cohort is provided on examination performance. Students are encouraged to discuss any issues connected with the individual course directly with the relevant faculty member or through the staff/student committee. Students will not receive individual examination feedback, students will be provided with an alpha grade. The numerical mark will only be available after the Board of Examiners and will be released by Registry. Grades received during the year are deemed provisional until confirmed by the Final Board of Examiners.
Re-sit Policy
The College's Policy on Re-sits is available at: www.imperial.ac.uk/registry/exams/resit
Mitigating Circumstances Policy
The College's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/registry/exams

Assessment Structure

Marking Scheme

The pass mark for each assessment is 40%. The pass mark for each module is 40%. Exceptionally, the pass mark for the 'Maths' module is 60%.

Year One
A student must:

- Achieve an aggregate mark of at least 40% in each module
- Achieve a 'pass' in the 'Maths' module

Year Two
A student must:

- Achieve an aggregate mark of at least 40% in each module

Year Three
A student must:

- Achieve an aggregate mark of at least 40% in the core modules 'Advanced Chemistry' and 'Chemistry Coursework 3 for BSc Chemistry'
- Achieve an aggregate mark of at least 40% in the total combined mark for the elective modules comprising 'Advanced Chemistry Research Topics ' ***OR***
- Achieve an aggregate mark of at least 40% in the total combined mark for the elective modules comprising Advanced Chemistry Research Topics for BSc Chemistry with Horizons or BPES module

Year Four
A student must:

- Achieve an aggregate mark of at least 40% in each module

Final Degree Classifications

Third – a student must achieve an aggregate mark of 40%
Lower Second – a student must achieve an aggregate mark of 50%
Upper Second – a student must achieve an aggregate mark of 60%
First - a student must achieve an aggregate mark of 70%

Year	% Year Weighting	Module		% Module Weighting
Year One	7.1%	Introduction to Chemistry		13.3r%
		Inorganic Chemistry 1		13.3r%
		Organic Chemistry 1		13.3r%
		Physical Chemistry 1		13.3r%
		Chemistry Coursework 1		36.7r%
		1 x module from elective group (A)		10%
Year Two	21.4%	Inorganic Chemistry 2		18.3r%
		Organic Chemistry 2		18.3r%
		Physical Chemistry 2		18.3r%
		Chemistry Coursework 2		35%
		1 x module from elective group (B)		10%
Year Three	35.7%	Advanced Chemistry		33.3r%
		Chemistry Coursework 3 for BSc Chemistry		46.6r%
		EITHER:	Advanced Chemistry Research Topics	20%
		OR:	Advanced Chemistry Research Topics for BSc Chemistry with Management	10%
			1 x module from elective group (C)	10%

Year	% Year Weighting	Module	% Module Weighting
Year Four	35.7%	Accounting	7.5%
		Business Economics	7.5%
		Business Strategy	7.5%
		Organisational Behaviour & Human Resource Management	7.5%
		Global Business Management	7.5%
		Marketing	7.5%
		Innovation Management	7.5%
		Finance & Financial Management	7.5%
		Sustainable Business	7.5%
		Entrepreneurship	7.5%
		Group Project	25%

Indicative Module List												
Code	Title	Core/ Elective	Year	L&T Hours	Ind. Study Hours	Place-ment Hours	Total Hours	% Written Exam	% Course-work	% Practical	FHEQ Level	ECTS
CHEM40001	Introduction to Chemistry	CORE	1	73	127	0	200	100%	0%	0%	4	8
CHEM40002	Inorganic Chemistry 1	CORE	1	36	164	0	200	100%	0%	0%	4	8
CHEM40003	Organic Chemistry 1	CORE	1	37	163	0	200	100%	0%	0%	4	8
CHEM40004	Physical Chemistry 1	CORE	1	56	144	0	200	100%	0%	0%	4	8
CHEM40005	Chemistry Coursework 1	CORE	1	160	390	0	550	0%	68.53%	31.47%	4	22
CHEM40007	Medicinal Chemistry	ELECTIVE (A)	1	27	123	0	150	100%	0%	0%	4	6
CHEM40008	Maths and Physics for Chemists 1	ELECTIVE (A)	1	55	95	0	150	85%	15%	0%	4	6
-	Horizons (Languages only)	ELECTIVE (A)	1	Variable			150	Variable				6
CHEM50001	Inorganic Chemistry 2	CORE	2	67	208	0	275	100%	0%	0%	5	11
CHEM50002	Organic Chemistry 2	CORE	2	79	196	0	275	100%	0%	0%	5	11
CHEM50003	Physical Chemistry 2	CORE	2	75	200	0	275	100%	0%	0%	5	11
CHEM50004	Chemistry Coursework 2	CORE	2	219	308	0	525	0%	39.8%	60.2%	5	21
CHEM50007	Maths and Physics for Chemists 2	ELECTIVE (B)	2	60	90	0	150	100%	0%	0%	5	6
CHEM50008	Medicinal Chemistry 2	ELECTIVE (B)	2	32	118	0	150	100%	0%	0%	5	6

Indicative Module List												
Code	Title	Core/ Elective	Year	L&T Hours	Ind. Study Hours	Place-ment Hours	Total Hours	% Written Exam	% Course-work	% Practical	FHEQ Level	ECTS
-	Horizons (Languages only)	ELECTIVE (B)	2	Variable			150	Variable				6
HSCS2001	Communicating Science	ELECTIVE (B)	2	40	110	0	150	0%	80%	20%	5	6
HSCS2010	Science and Policy	ELECTIVE (B)	2	40	110	0	150	0%	80%	20%	5	6
HSCS2002	Creativity, Innovation and Invention	ELECTIVE (B)	2	40	110	0	150	0%	60%	40%	5	6
CHEM50009	Undergraduate Ambassadors Scheme	ELECTIVE (B)	2	12	87	51	150	0%	90%	10%	5	6
CHEM60001	Advanced Chemistry	CORE	3	82	418	0	500	100%	0%	0%	6	20
CHEM60002	Advanced Chemistry Research Topics	CORE	3	97	203	0	300	100%	0%	0%	6	12
CHEM60013	Advanced Chemistry Research Topics for BSc Chemistry	CORE	3	35	115	0	150	100%	0%	0%	6	6
-	Horizons (Languages only)	ELECTIVE (C)	3	Variable			150	Variable				6
CHEM60012	Chemistry Coursework 3 for BSc Chemistry	CORE	3	313	387	0	700	0%	45%	55%	6	28
-	Induction	CORE	4	35	0	0	35	Not assessed			6	0
BS0690	Accounting Primer	CORE	4	10	15	0	25	Not assessed			6	0
BS0691	Pre-Programme Maths	CORE	4	10	15	0	25	Not assessed			6	0
BS1317	Plagiarism Awareness	CORE	4	10	15	0	25	Not assessed			6	0

Indicative Module List												
Code	Title	Core/ Elective	Year	L&T Hours	Ind. Study Hours	Place-ment Hours	Total Hours	% Written Exam	% Course-work	% Practical	FHEQ Level	ECTS
BS1314	Study Skills	CORE	4	10	15	0	25	Not assessed			6	0
BS0601	Accounting	CORE	4	32	93	0	125	70%	30%	0%	6	5
BS0602	Business Economics	CORE	4	27	98	0	125	70%	30%	0%	6	5
BS0603	Business Strategy	CORE	4	22	103	0	125	70%	30%	0%	6	5
BS0612	Organisational Behaviour & Human Resource Management	CORE	4	22	103	0	125	70%	30%	0%	6	5
BS0609	Global Business Management	CORE	4	22	103	0	125	70%	30%	0%	6	5
BS0611	Marketing	CORE	4	22	103	0	125	70%	30%	0%	6	5
BS0616	Innovation Management	CORE	4	22	103	0	125	60%	20%	20%	6	5
BS0607	Finance & Financial Management	CORE	4	27	98	0	125	70%	30%	0%	6	5
BS0618	Sustainable Business	CORE	4	22	103	0	125	70%	30%	0%	6	5
BS0606	Entrepreneurship	CORE	4	22	103	0	125	30%	70%	0%	6	5
BS0600	Group Project	CORE	4	0	250	0	250	0%	70%	30%	6	10

Supporting Information
The Chemistry Programme Handbooks is available at: http://www.imperial.ac.uk/chemistry/undergraduate/course-structure-and-content/ The Business Programme Handbooks is available at: http://wwwf.imperial.ac.uk/business-school/programmes/programme-information/
The Chemistry Module Handbook is available through the Virtual Learning Environment module "Course Summaries 2017/18" The Business Module Handbook is available at: http://wwwf.imperial.ac.uk/business-school/programmes/programme-information/
The College's entry requirements for undergraduate programmes can be found at: www.imperial.ac.uk/study/ug/apply/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: http://www3.imperial.ac.uk/registry/proceduresandregulations/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". http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters-statutes-ordinances-and-regulations/
Imperial College London is regulated by the Higher Education Funding Council for England (HEFCE) http://www.hefce.ac.uk/reg/of/

Modification			
Changes to the assessment of module CHEM40008 'Maths and Physics for Chemists Year 1'	Programmes Committee	21 March 2017	PC.2016.75