Template C4

Kingston University London

Programme Specification

Title of Course: *BSc (Hons) Chemistry*

Date first produced	31/08/2012
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Version number	9
Faculty	Faculty of Health, Science, Social Care & Education
School	School of Life Sciences, Pharmacy and Chemistry
Department	Department of Chemical & Pharmaceutical Sciences
Delivery Institution	Kingston University, London

This Programme Specification is designed for prospective students, current students, academic staff and employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes and content of each modules can be found in the course VLE site and in individual Module Descriptors.

SECTION 1: GENERAL INFORMATION

Award(s) and Title(s): ***Up to 10 pathways***	BSc (Hons) Chemistry
Intermediate Awards(s) and Title(s): ***There are 4 Intermediate awards for each pathway***	Cert HE Ordinary degree Dip HE
Course Code ***For each pathway and mode of delivery***	NPCKUDH4S NPCKUDH3F
UCAS code ***For each pathway***	F100

Award(s) and Title(s): ***Up to 10 pathways***	BSc (Hons) Chemistry (with Professional Placement)
Intermediate Awards(s) and Title(s): ***There are 4 Intermediate awards for each pathway***	Cert HE Ordinary degree Dip HE
Course Code ***For each pathway and mode of delivery***	
UCAS code ***For each pathway***	

Award(s) and Title(s): ***Up to 10 pathways***	BSc (Hons) Chemistry (with Foundation Year)
Intermediate Awards(s) and Title(s): ***There are 4 Intermediate awards for each pathway***	Cert HE Ordinary degree Dip HE
Course Code ***For each pathway and mode of delivery***	
UCAS code ***For each pathway***	

RQF Level for the Final Award:	Bachelors (BSc)
Awarding Institution:	Kingston University
Teaching Institution:	Kingston University, London
Location:	Penrhyn Road
Language of Delivery:	English
Modes of Delivery:	Full Time With Professional Placement

	Part-time
Available as:	Full field
Minimum period of registration:	Full Time - 3 With Professional Placement - 4 Part-time - 6
Maximum period of registration:	Full Time - 6 With Professional Placement - 8 Part-time - 12
Entry Requirements:	Kingston University typically uses a range of entry requirements to assess an applicant's suitability for our courses. Most course requirements are based on UCAS Tariff points, usually stipulated as a range, and are sometimes coupled with minimum grades in specific relevant subjects. We may also use interview, portfolio and performance pieces to assess an applicant's suitability for the course. We recognise that every person's journey to Higher Education is different and unique and in some cases we may take into account work experience and other non-standard pathways onto University level study. Additionally, all non-UK applicants must meet our English language requirements. Please see our course pages on the Kingston University website for the most up to date entry requirements.
Programme Accredited by:	Royal Society of Chemistry (RSC)
QAA Subject Benchmark Statements:	All subject benchmark statements can be found here. The Chemistry QAA Subject Benchmark statement can be accessed at: https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-chemistry.pdf?sfvrsn=1af2c881_4
Approved Variants:	There are no variants to the UR.
Is this Higher or Degree Apprenticeship course?	

For Higher or Degree Apprenticeship proposals only	
Higher or Degree Apprenticeship standard:	n/a
Recruitment, Selection and	n/a

Admission process:	
End Point Assessment Organisation(s):	n/a

SECTION 2: THE COURSE

A. Aims of the Course

The main aims of the field taken by BSc students are:

- to provide students who take the Chemistry field with a broad knowledge of the main branches of the subject (organic, inorganic, physical and analytical chemistry)
- to provide exposure to other areas of the subject, such as environmental, medicinal and industrial or analytical chemistry, and to permit some degree of specialisation within these areas
- to develop subject related practical skills
- to enable students to develop their skills in independent study using both primary and secondary literature sources
- to provide students with the opportunity to develop their written and oral communication skills
- to prepare students for graduate employment (subject related or otherwise) or further study (either taught or by research) by developing their intellectual, problem solving, analytical and key (transferable) skills.

Additionally, for those students following the sandwich programme:

- to enable students to complete a period of work experience within the chemical industry, building upon their previous academic knowledge and experience
- to provide students with an insight into the role of the professional chemist by firsthand experience and to increase their awareness of career opportunities within the chemical industry

B. Intended Learning Outcomes

The course outcomes are referenced to the relevant QAA subject benchmarks indicated, and the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (2014), and relate to the typical student. The course provides opportunities for students to develop and demonstrate knowledge and understanding specific to the subject, key skills and graduate attributes in the following areas:

The programme learning outcomes are the high-level learning outcomes that will have been achieved by all students receiving this award. They must align to the levels set out in the 'Sector Recognised Standards in England' (OFS 2022).

Programme Learning Outcomes					
	Knowledge and Understanding On completion of the course students will be able to:		**Intellectual Skills** On completion of the course students will be able to		**Subject Practical Skills** On completion of the course students will be able to
A4	The numerical and computational skills necessary for working in science	B4	Demonstrate the ability to work and study in an independent manner	C3	Plan a an programme of laboratory work and carry out a safety assessment for it
A3	Applied areas of chemistry (environmental, medicinal, materials and industrial), especially those that are related to the chemical industry	B3	Carry out and report the results of an individual project (or review and evaluate the work of others in a subject)	C2	Report on and draw conclusions from the results of laboratory work
A2	Experimental & analytical chemistry, including aspects of separation science and spectroscopy	B1	Critically analyse and appraise primary and secondary sources of information, where necessary using multiple sources of information	C1	Carry out preparative and analytical (both qualitative and quantitative) laboratory work in the main branches of chemistry
A1	The three core branches of chemistry (inorganic, organic & physical)	B2	Solve problems both in aspects of chemistry and the supporting numerical areas	C4	Use a range of instrumentation and understand the technical basis for it

In addition to the programme learning outcomes, the programme of study defined in this programme specification will allow students to develop the following range of Graduate Attributes:

1. Creative Problem Solving
2. Digital Competency
3. Enterprise
4. Questioning Mindset
5. Adaptability
6. Empathy
7. Collaboration
8. Resilience
9. Self-Awareness

C. Outline Programme Structure

Each level is made up of four modules, each worth 30 credit points. Typically a student must complete 120 credits at each level. All students will be provided with the University regulations. Full details of each module will be provided in module descriptors and student module guides.

BSc (Hons) Chemistry

Level 4							
BSc (Hons) Chemistry							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Academic Skills for Molecular Sciences	CH4004	30	4	1&2			
Foundation Inorganic and Environmental Chemistry	CH4002	30	4	1&2			
Foundation Organic and Physical Chemistry	CH4001	30	4	1&2			
Introduction to Spectroscopy and Experimental Techniques	CH4003	30	4	1&2			
Optional Modules							

Progression to Level 5

This course permits progression from Level 4 to Level 5 with 90 credits at Level 4 or above. Progression to Level 5 requires passes in CH4001, CH4002 and CH4003. The outstanding

30 credits from Level 4 can be trailed into level 5 and must be passed before progression to level 6. In addition, students must complete at least 80% of the practical sessions.
Students exiting the course at this point who have successfully completed 120 credits at level 4 or above are eligible for the award of Certificate of Higher Education in Chemistry.

Level 5							
BSc (Hons) Chemistry							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Analytical and Experimental Chemistry	CH5004	30	5	1&2			
Inorganic Chemistry	CH5001	30	5	1&2			
ORGANIC AND MEDICINAL CHEMISTRY	CH5002	30	5	1&2			
Physical Chemistry	CH5003	30	5	1&2			
Optional Modules							

Progression to Level 6

LS5000 is a core module for students who choose the sandwich year placement.
This course permits progression from level 5 to level 6 with 90 credits at level 5 or above. Progression to level 6 requires a pass in CH5004 if the option module CH6007 is chosen. The outstanding 30 credits from level 5 can be trailed into level 6 and must be passed before consideration for an award. In addition students must complete at least 80% of the practical sessions.
Students exiting the programme at this point who have successfully completed 120 credits at level 5 or above are eligible for the award of Diploma of Higher Education in Chemistry.

Level 6							
BSc (Hons) Chemistry							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Inorganic Chemistry 2	CH6033	15	6	2		3	3
Organic and Natural Product Chemistry	CH6001	30	6	1&2			
Physical Chemistry 2	CH6023	15	6	2		3	1
Project	CH6004	30	6	1&2			
Optional Modules							
Advanced Analytical Science	CH6007	30	6	1&2	CH5004 or CH5006		
Advanced Materials and	CH6016	30	6	1&2			

Industrial Chemistry							

Level 6 requires the completion of

Level 6 requires the completion of the compulsory modules and one option module. Students exiting the programme with 120 credits at each level are eligible for the award of BSc (Hons) Chemistry.

BSc (Hons) Chemistry (with Professional Placement)

BSc (Hons) Chemistry (with Foundation Year)

D. Principles of Teaching, Learning and Assessment

Knowledge and understanding of the field is developed from level to level. Level 4 consolidates and succeeds A level Chemistry or equivalent and provides a core understanding of the main organic, inorganic and physical branches of the subject. It also furthers knowledge of laboratory techniques and analytical methods and provides breadth through introduction to environmental chemistry. Essential mathematical and computing skills are also emphasised. Level 5 extends discussion and comprehension of organic, inorganic, physical and analytical chemistry and also introduces aspects of medicinal chemistry. Level 6 of the programme allows students to pursue these same aspects to a higher level, while allowing them to gain familiarity with more applied areas of the field, for example looking at aspects of modern materials and industrial chemistry. There is also a significant research project in an area of the student's choice. Here, they are able to carry out individual investigations (either laboratory or literature based) from initial planning to final report. Research informs much of the teaching on the course and this is particularly the case in the final year, capstone project. Project supervisors frequently offer projects related to their own areas of expertise and active research, with final year project students making a contributing to these.

Teaching on this course is multi-faceted; there is a strong emphasis on student-centred learning such as project-based, enquiry-led and problem-based approaches in order to improve inclusivity within a curriculum that can be perceived as abstract and thus not egalitarian. As example of this inclusive approach is demonstrated by the group problem-based learning project where students are able to explore and investigate a major atmospheric environmental problem. The use of group work to facilitate participation is a common thread that runs through the whole course.

From level to level, students make progressively more use of primary and research-based sources of information. They develop skills to analyse and appraise original sources, assemble data from various sources, solve complex problems. Students are expected to become more independent in their learning as the course progresses.

A feature of this field is the range of practical work that is undertaken using advanced equipment and instrumentation. Students become familiar (by direct hands-on experience) with infrared, ultraviolet/visible and nuclear magnetic resonance spectroscopy, mass

spectrometry, various forms of chromatography and some of the so-called hyphenated techniques.

Throughout the field, emphasis is placed on group work skills, written and oral communication and presentation skills, data handling and analysis skills, a range of ICT skills and independent learning skills. This provides the basis for students to enhance their personal objectives after graduation, whether these relate to further research or training, or to careers in science-based industry, commerce or otherwise.

The skills developed during the study of the field are assessed within these various types of assessment. For example: the use of ICT is a normal expectation in the preparation of written work, reports etc; data handling is inherent in many of the activities; assessments are carried out by groups and individuals, and greater self-reliance is needed from level to level. Assessment is tracked via a calendar to spread workload and to avoid bunching.
E-Technology plays an important role in enhancing learning and teaching throughout the chemistry course. Canvas is a virtual learning environment (VLE) that allows students to access lecture notes, assessments, screencasts, practical videos and links to Open Educational Resources (OERs) outside of the class room. Classroom technologies such as MS Teams allow the electronic recording of work done on an electronic whiteboard in the classroom. The use of Turnitin allows students to recognise the dangers of plagiarism and Grademark and other electronic marking systems are used by staff to give students quicker and clearer feedback. A large range of modules make use on on-line assessment tools to provide formative assessment with rapid feedback to enable students to prepare better for their subsequent summative assessments. E-technology is also used in the electronic marking of some practical work and in addition, it provides a forum for peer learning through the development and use of discussion boards and can also support blended learning in, for example, the delivery of talks by external speakers through online sessions.
The assessments are a mixture of coursework and of end-of-module exams. Key pieces of coursework will be of a formative nature, allowing students to benefit and learn from feedback given on a piece of work, before completion of a later summative assessment. Each module carries a final grade, which is made up of summative marks for coursework and end of module assessments. The contribution of the individual elements of assessment to the module total and the requirements to pass each module are detailed in individual module guides.
Many modules in the course have an assessment component comprised of a collection of smaller coursework elements such as practical forms, laboratory forms or data collected in class and small problem assignments. Continual review of these assessment elements is performed to ensure that students get feedback on one piece before doing the next and that the summative assessment burden is not so great to prevent students being engaged with the formative assessment opportunities offered in modules. Many laboratory proforma can be completed during the laboratory sessions themselves using the computer facilities available, and immediate feedback obtained via automated electronic worksheets.
All students are allocated a personal tutor during the induction week preceding the first year of the course. They are encouraged to make contact with this staff member, who will remain an important figure in their three years at Kingston, during the induction week – perhaps informally at the Freshers' Party, or by appointment later in the week before teaching starts. Having regular contact with a staff member who is able to get to know them personally is of great advantage to the student. Not only does it give them someone to consult for advice on academic and sometime non-academic matters, but it provides them with someone who is well informed to write a reference for them, either for placements or summer internships, or at towards the end of their course as they embark on the next stages of their careers.

In the first year, there is an exercise on learning styles and study skills, probing the kinds of activity students encounter and find beneficial on their modules. This is followed up in the second semester with a review of academic progress. In the second year, attention turns

more to employability and the completion of CVs and application forms in preparation for possible placements between the second and third years. These skills are introduced by a brief re-induction session preceding the start of the second year and are assisted by employability coordinators from the Careers and Employability Service. Prior to the final year, re-induction sessions focus more on the project work to be carried out during the year, while contact with personal tutors again focusses on employability and preparation for life as a graduate, after completion of the course.

E. Support for Students and their Learning

Students are supported by:

- A Course Leader, to help students understand the overall course structure
- A Module Leader for each module taken
- A Personal Tutor to provide academic and personal support (as part of the Personal Tutor Scheme)
- Technical support to advise students on IT and the use of software
- An induction programme at the start of each new academic session
- A Student Voice Committee
- My Kingston/Canvas – an on-line interactive intranet and virtual learning environment
- Student Services, which provides support facilities that are able to give advice on matters such as finance, regulations, legal issues, accommodation, personal issues, disability, international student support.
- The Union of Kingston Students
- Careers and Employability Service
- The Library, which includes the four on campus libraries as well as an online library and other e-resources
- The Academic Success Centre (ASC) and MathsAid, that provide specific academic support on academic writing, study skills and maths

F. Ensuring and Enhancing the Quality of the Course

The University has several methods for evaluating and improving the quality and standards of its provision. These include:

- External examiners
- School Education Committee
- Annual Monitoring and Enhancement
- Kingston Continuous Enhancement Process (KCEP+)
- The Industrial Advisory Board for the Department of Chemical and Pharmaceutical Sciences
- Student evaluation including Module Evaluation Questionnaire (MEQs), level surveys and the National Student Survey (NSS)
- Moderation policies
- Feedback from employers
- Royal Society of Chemistry quinquennial reaccreditation

G. Employability and work-based learning

The University has several methods for evaluating and improving the quality and standards of its provision. These include:

- External examiners
- School Education Committee
- Annual Monitoring and Enhancement
- Kingston Continuous Enhancement Process (KCEP+)
- The Industrial Advisory Board for the Department of Chemical and Pharmaceutical Sciences
- Student evaluation including Module Evaluation Questionnaire (MEQs), level surveys and the National Student Survey (NSS)
- Moderation policies
- Feedback from employers
- Royal Society of Chemistry quinquennial reaccreditation

Work-based learning, including sandwich courses and higher or degree apprenticeships

Work placements are actively encouraged – although it is the responsibility of individual students to source and secure such placements. This allows students to reflect upon their own personal experience of working in an applied setting, to focus on aspects of this experience that they can clearly relate to theoretical concepts and to evaluate the relationship between theory and practice.

H. Other sources of information that you may wish to consult

QAA Subject Benchmark in Chemistry: http://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-chemistry-14.pdf?sfvrsn=99e1f781_14
Royal Society of Chemistry: http://www.rsc.org/
Higher Education Academy**Error! Hyperlink reference not valid.**

I. Development of Course Learning Outcomes in Modules

This table maps where course learning outcomes are **summatively** assessed across the modules for this course. It provides an aid to academic staff in understanding how individual modules contribute to the course aims, a means to help students monitor their own learning, personal and professional development as the course progresses and a checklist for quality assurance purposes.

Module Code	Level 4	Level 5	Level 6

		CH4001	CH4002	CH4003	CH4004	CH5004	CH5003	CH5001	CH5002	CH6016	CH6007	CH6004	CH6001	CH6023	CH6033
Knowledge & Understanding	A4	S			S	S	S	F	S	S/F	F		S/F	S	S
	A3		S	S/F		S/F			S	S/F	F	S	S/F		
	A2	S				S/F	S	S		S	F	S	S/F	S	S
	A1	S	S	S/F			S	S	S	S/F	S	S	S/F	S	S
Intellectual Skills	B4	F			S	S/F	S		S		F	S	F	S	S
	B3			S/F	F	S	F	S	F		F	S	S/F	S	
	B1	F	S		S	F	F			S	F	S	S/F	S	S
	B2	S			S	S	S	S	S	S/F	S	S	S/F	S	S
Practical Skills	C3			S/F		S		F			S	S	F	S	S
	C2	S	S/F	S/F		S	S	S		S		F	S	S	S
	C1	S	S	S/F	F	S	S			S/F	S	S	S/F	S	S
	C4			S/F		S/F	S				F	S	F	S	S

Students will be provided with formative assessment opportunities throughout the course to practise and develop their proficiency in the range of assessment methods utilised.