Template C4

Kingston University London

Programme Specification

Title of Course: *MSc Pharmaceutical Science*

Date first produced	30/09/2012
Date last revised	16/08/2023
Date of implementation of current version	01/09/2023
Version number	4
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

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***	MSc Pharmaceutical Science
Intermediate Awards(s) and Title(s): ***There are 4 Intermediate awards for each pathway***	PG Diploma Pharmaceutical Science PG Certificate Pharmaceutical Science
Course Code ***For each pathway and mode of delivery***	PFPHS1PHS01
UCAS code ***For each pathway***	-

Award(s) and Title(s): ***Up to 10 pathways***	MSc Pharmaceutical Science with Professional Placement
Intermediate Awards(s) and Title(s): ***There are 4 Intermediate awards for each pathway***	PG Diploma Pharmaceutical Science with Professional Placement PG Certificate Pharmaceutical Science with Professional Placement
Course Code ***For each pathway and mode of delivery***	
UCAS code ***For each pathway***	

RQF Level for the Final Award:	7
Awarding Institution:	Kingston University
Teaching Institution:	Kingston University
Location:	Penrhyn Road Campus
Language of Delivery:	English
Modes of Delivery:	Full Time With Professional Placement
Available as:	
Minimum period of registration:	Full Time - 1 With Professional Placement - 2
Maximum period of registration:	Full Time - 2 With Professional Placement - 3
Entry Requirements:	The minimum entry qualifications for the programme are a second class UK (or UK

	equivalent) Bachelor Honour's degree in Pharmaceutical Science, Pharmacy or related i.e. Chemistry or Life Science disciplines. All students applying for this programme should have studied modules which include elements of both chemistry and biology within their bachelor's degree. Candidates with an alternative qualification such as an HND are normally expected to have appropriate experience in pharmaceutical or related field. British nationals/majority English-speaking nation nationals need a GCSE Grade C or above in English or an equivalent qualification, (see webpages for further details). Students who are not a national of a majority English speaking country or who have not completed an academic qualification equivalent to a UK Bachelor's degree are required to provide evidence of appropriate competence in use of the English Language. A successful completion of a recognised English Language examinations, such as IELTS test (with a minimum overall score of 6.5 with 6.0 in Writing and no element i.e. Reading, Listening and Speaking less than 5.5), is required. The minimum entry qualifications for the programme are a second class UK (or UK equivalent) Bachelor Honour's degree in Pharmaceutical Science, Pharmacy or related i.e. Chemistry or Life Science disciplines. All students applying for this programme should have studied modules which include elements of both chemistry and biology within their bachelor's degree. Candidates with an alternative qualification such as an HND are normally expected to have appropriate experience in pharmaceutical or related field. British nationals/majority English-speaking nation nationals need a GCSE Grade C or above in English or an equivalent qualification, (see webpages for further details). Students who are not a national of a majority English speaking country or who have not completed an academic qualification equivalent to a UK Bachelor's degree are required to provide evidence of appropriate competence in use of the English Language. A successful completion of a recognised English

	Language examinations, such as IELTS test (with a minimum overall score of 6.5 with 6.0 in Writing and no element i.e. Reading, Listening and Speaking less than 5.5), is required.
Programme Accredited by:	N/A
QAA Subject Benchmark Statements:	*QAA Master's Degree Characteristics*.
Approved Variants:	There are no variants to postgraduate regulations.
Is this Higher or Degree Apprenticeship course?	

For Higher or Degree Apprenticeship proposals only	
Higher or Degree Apprenticeship standard:	n/a
Recruitment, Selection and Admission process:	n/a
End Point Assessment Organisation(s):	n/a

SECTION 2: THE COURSE

A. Aims of the Course

The aims of the MSc programme are:

- to ensure that students possess an in-depth knowledge of the core elements of pharmaceutical science and their applications in industry and research.
- to enable students develop an understanding of the testing of pharmaceutical products and medical devices in human volunteers and patients, and of the role of statistics and clinical data management.
- to develop students' problem-solving, practical, IT and key (transferable) skills derived from the collection, analysis, interpretation and representation of data and information in preparation for their careers in a variety of work environments.
- to develop critical awareness of the aspects concerning clinical trials, post-marketing pharmacovigilance and regulatory affairs of drug products manufactured within the pharmaceutical industry.
- to provide the skills required for self-management and autonomy in the planning, organisation and conduct of an independent research project by enabling them to engage with current research methods and techniques.

In addition, the aims of the professional placement module are:

- To provide experience of working in a professional environment that is relevant to the field of study and enhance career prospects through the development of a range of skills that enable students to present themselves effectively, network and make informed decisions about employment and career plans.
- To allow students to consolidate and apply the range of skills and knowledge acquired in the course of their studies to a work environment and to reflect on and develop these skills and knowledge further.

B. Intended Learning Outcomes

The programme outcomes are referenced to the QAA subject benchmarks for Chemistry and Pharmacy, and the Framework for Higher Education Qualifications of UK Degree-Awarding Bodies (2018), 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 addition, students who successfully complete the professional placement module will be able to:

- Relate academic theory to practice and apply knowledge and skills in a professional context
- Maintain an accurate account of work activity , reflect critically on the experience of the placement and evaluate their own personal and professional development
- Confidently present a critical understanding of the placement organisation and their experience within it

- Develop and practice key personal and employability skills and be able to show examples of the application of these skills including: self-awareness, communication, interpersonal, research and information literacy, numeracy and management and leadership skills
- Autonomously evaluate tasks set in the work place and apply effective communication and problem solving initiatives to achieve the best outcome for the employer;

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
A7	fully understand how to prepare a research report and poster in the correct format and to have an active engagement and familiarity with recent and current research methods, results and publications	B7	develop an understanding of the challenges concerning pharmaceutical industry, and with reflection and recall of both theoretical and practical skills, be able to contemplate solutions	C6	design controlled experiments to investigate qualitative and/or quantitative characteristics of pharmaceuticals and apply and adapt problem solving skills
A6	fully understand how a research project operates and undertake research in a logical and safe manner	B6	plan, carryout and report investigations with an effective self-critical attitude	C5	develop an understanding of the analytical challenges particular to the pharmaceutical industry and acquire the specialised knowledge to face those challenges
A4	possess a comprehensive knowledge of the use of IT and predictive systems that are used to produce and evaluate drug molecules and medicinal products	B5	critically analyse and appraise information obtained from both primary and secondary sources	C4	be conversant with the detailed and strict requirements of facilities used in the manufacturing of medicines for use by patients
A3	display advanced skills in generation, interpretation and discussion of the laboratory data, in the context of wider scientific problems, and in an industry setting	B2	demonstrate the ability to be independent, autonomous and self-managed learners	C3	plan and implement good scientific and consistent practice, reliably recording methods and results using appropriate methods to critically analyse the data and statistically evaluate the level of its uncertainty
A2	possess knowledge of the principles and concepts within pharmaceutical science and acquire competence in the development, selection, and use of	B3	identify and select appropriate techniques and procedures for undertaking scientific analyses	C2	demonstrate skills in operating in an efficient manner the techniques used widely in the analytical and pharmaceutical industry

	a range of pharmaceutical products				
A1	appreciate the role of pharmaceutical scientist in a variety of work environments and possess a clear understanding of the ethical, legal and commercial responsibilities of the profession	B1	solve the more complex problems that can arise during the theoretical and/or experimental investigations	C1	carry out subjectspecific practical work safely and understand the safety requirements which include generating CoSHH forms
A5	acquire specialist knowledge on quality assurance/control of pharmaceuticals in addition to acquiring specialist knowledge of advanced analytical techniques and specialised applications of those techniques	B4	assemble scientific data from a variety of sources, discern and establish correlations	C7	recommend improvements in methodology, technology or interpretation that enhance the performance of processes and/or procedures related to pharmaceutical products

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

This programme is offered in full-time mode, and leads to the award of MSc in Pharmaceutical Science. Exit awards such as a postgraduate diploma or a postgraduate certificate are possible when the minimum credits achieved by a candidate are either 120 or 60 respectively. Intake into the programme is normally in September and January.
The MSc is made up of four taught modules each worth 30 credits and a research project worth 60 credits (180 credits total). All students will be provided with the University regulations. Full details of each module will be provided in module descriptors and on module pages within Canvas.

The Professional Placement module is for all placements route students and takes place in June for September entry or February for January entry. It can be up to 1 year in length maximum. Students are expected to engage in 10-12 months of work in the professional environment in a maximum of 2 settings. Assigned hours of work are to be arranged by the supervisor at the host institution. There must be at least 30 hours week of work. All placements will be arrangements between Kingston University and the institution hosting the placement, which may include companies, research institutes and hospitals. Placements are secured by students based on availability and opportunity, taking into consideration the student's academic background and proficiencies. Selection for placements will often be competitive and at the discretion of the host work place. Students will demonstrate professional responsibility through attendance at the work place for the agreed time and hours, adherence to policies in place at the work place, effective professional communication with supervisors and co-workers, and completion of tasks and duties as they are assigned.
Students joining the course in September undertake modules Statistics and Quality Systems (CH7010) and Design, Discovery and Development of Pharmaceuticals (CH7070) in teaching block 1 (TB1) then progress onto Pharmaceutical and Analytical Technology (CH7050) and Manufacture and Clinical Trials of Medicines (CH7060) in teaching block 2 (TB2) followed by the project (CH7100) in teaching block 3 (TB3). Whilst the assessments within CH7010 and CH7050 are coursework based and are conducted during the term time, the end-of-module exams for CH7070 and CH7060 are held in the first teaching week of January and in April/May periods respectively.
Students joining the course in January will initially take Pharmaceutical and Analytical Technology (CH7050) and Manufacture and Clinical Trials of Medicines

(CH7060) in TB2 followed by the project (CH7100) in TB3. They will then complete Statistics and Quality Systems (CH7010) and Design, Discovery and Development of Pharmaceuticals (CH7070) in TB1. These students will write up and submit their final project dissertation copy (CH7100) in January, after they completed all four taught modules so that the knowledge and skills they gained from the taught modules can be applied in the dissertation write up and maximise their performance.
Students exiting the programme with 120 credits are eligible for the award of PGDip.
Students exiting the programme with 60 credits are eligible for the award of PGCert.
Students starting the course in September will work on the placement for 10 –12 months, starting from June, before their dissertation. Those students must confirm their placement before the Faculty deadline in May. Students on January intake will work on the placement for 10 –12 months, starting from February, after completing their dissertation. Students on this intake must confirm their placement before the Faculty deadline in December. In either case, the suitability of the placement requires approval of the Course Leader. Students on placement must complete a portfolio assessment which includes a reflection on how the theories they have learnt during their teaching year have helped them in their placement and demonstrate ability to apply their teaching in a real world situation.

MSc Pharmaceutical Science

Level 7							
MSc Pharmaceutical Science							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Design, Discovery and Development of Pharmaceuticals	CH7070	30	7	1			
Manufacture and Clinical Trials of Medicines	CH7060	30	7	2			
MSc Project	CH7100	60	7	3			
Pharmaceutical and Analytical Technology	CH7050	30	7	2			
Statistics and Quality Systems	CH7010	30	7	1			
Optional Modules							

MSc Pharmaceutical Science with Professional Placement

Level 7
MSc Pharmaceutical Science with Professional Placement

Core modules	Module code	Credit Value	Level	Teaching Block	Pre-requisites	Full Time	Part Time
Design, Discovery and Development of Pharmaceuticals	CH7070	30	7	1		1	
Manufacture and Clinical Trials of Medicines	CH7060	30	7	1		1	
MSc Project	CH7100	60	7	1		1	
Pharmaceutical and Analytical Technology	CH7050	30	7	1		1	
Professional Placement	CH7900	120	7	1		1	
Statistics and Quality Systems	CH7010	30	7	1		1	
Optional Modules							

Level 7 information

The Professional Placement module is for all placements route students and takes place in June for September entry or February for January entry. It can be up to 1 year in length maximum. Students are expected to engage in 10-12 months of work in the professional environment in a maximum of 2 settings. Assigned hours of work are to be arranged by the supervisor at the host institution. There must be at least 30 hours week of work. All placements will be arrangements between Kingston University and the institution hosting the placement, which may include companies, research institutes and hospitals. Placements are secured by students based on availability and opportunity, taking into consideration the student's academic background and proficiencies. Selection for placements will often be competitive and at the discretion of the host work place. Students will demonstrate professional responsibility through attendance at the work place for the agreed time and hours, adherence to policies in place at the work place, effective professional communication with supervisors and co-workers, and completion of tasks and duties as they are assigned.

D. Principles of Teaching, Learning and Assessment

The course utilises a wide range of teaching and learning methods that will enable all students to be actively engaged throughout the course. Teaching and learning and assessment methods are carefully crafted to suit the content and the learning outcomes of the module – typically using lectures in the early parts of modules to ensure that students have the key knowledge relating to the module. Through a variety of group and seminar work, practical and laboratory sessions students are then given the opportunity to develop more individual interests and personal and key skills.

The assessment regime for each module provide formative opportunities. A range of assessment methods will be used that enable students to demonstrate the acquisition of knowledge and skills along with opportunities for feedback and

'feedforward' in each module that will allow students to enhance their performance in the summative assessments. All assessment procedures and criteria have been designed at level 7 and are indicated in the assessment strategy for all modules offered within the programme. Assessment methods include course work, oral presentations, in-class tests, tests comprising of multiple choice questions (MCQs), examinations, laboratory reports and poster presentations. Care has been taken to avoid assessment bunching. The team make use of technology enhanced learning to improve the student experience and facilitate feedback. Examples include electronic marking and oral feedback via Grademark®, online assessments and bespoke assignments produced using excel and visual basic to enable a quick turnaround of marked material such as problem-solving practical assignments. Electronic feedback in pdf format is sent directly to the students email account. Students are supported by their allocated personal tutor, who will help students draw together the themes of the curriculum synoptically by discussing with them their Personal Development Plan. The development of academic skills is threaded throughout the course and assessed both formatively and summatively. Tutors test progress in the development of these skills, but also identify where students may need additional support, which may come via the Academic Skills Centre or other tailored support. An electronic personal development plan system is used to facilitate the process and will involve various touchpoints at different points of the academic year to ensure engagement between tutor and tutee. These will include for example an initial "get to know you" meeting where students will outline their background, describe what they hope to get from the course and how it will fit into their future career plans. A later meeting will look at results/feedback to date, discuss study methods and possible ways to improve performance.

All of the Course team are research active and regularly publish their work in peer reviewed journals. This research expertise is applied to respective modules i.e. research informed teaching on topics such as formulation and delivery of plasmid DNA and subunit vaccines delivered in CH7060, stability of therapeutic drugs in CH7010 and thermal analysis of pharmaceuticals (polymorphism, purity, degradation) in CH7050 and formulations of solid dosage forms in CH7050 are a few examples. Many hold or have held leading positions in the field such as Hon. Secretary of Royal Society of Chemistry's (RSC) Analytical Division, Members of the RSC or Pharmaceutical Science professional bodies, Chartered Chemists/EurChem/Chartered Scientists and have professional teaching qualifications such as PGCE(HE).

E. Support for Students and their Learning

Students are supported by:

- A Module Leader for each module
- A Course Director to help students understand the programme structure
- Personal Tutors to provide academic and personal support
- A project "placement" tutor to give general advice on placements and visit students
- Technical support to advise students on IT and the use of software
- A designated programme administrator

- An induction and orientation programme at the beginning of each new academic year. This includes an induction to the University, the School, Learning Resource Centre, the Graduate Centre, the Kingston University Student Union, University and School pastoral support and ancillary services
- Staff Student Consultative Committee
- Canvas – a versatile on-line interactive intranet learning environment
- A substantial Study Skills Centre that provides academic skills support
- Student support facilities that provide advice on issues such as finance, regulations, legal matters, accommodation, international student support etc.
- Disabled student support
- The Students' Union
- Careers and Employability Service

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
- Boards of study with student representation
- Annual Monitoring and Enhancement
- Periodic review undertaken at subject level
- Student evaluation including EMF, SSCC and MEQs,
- Moderation policies
- Feedback from employers

In the 2017 Departmental Internal Subject Review of Pharmaceutical Sciences and Chemistry courses took place. The review team commended the subject team on several strengths in the provision:

- The proactivity and agility of the academic staff that ensure the delivery of, high quality contemporary programmes.
- The quality of the current students and graduates and their engagement with the review team during the meeting.
- The approachability of staff which was particularly raised by students and graduates in both academic and pastoral care.
- The review team noted the following areas of good practice:
- The clear organisational structure for quality assurance and governance offering inclusivity to student representatives.
- The diagnostic student feedback ensures student expectations are managed from the start of the academic year and that provisions can be put in place to meet student expectations. In particular the maths aids, student support and signposting to academic skills provided to undergraduate students were exemplary.
- The wide range of assessments including course work, presentations, exams and essays.
- The mentoring scheme which provides cohort identity and additional support.
- The review team had confidence in the academic standards set and achieved for the fields involved in the review, in terms of the appropriateness of the content and academic level of the learning outcomes of the fields and the consistency of the actual student achievement with the intended outcomes.

- The review team had confidence in the quality of the learning opportunities that supported the students in achieving the academic standards of the awards to which the fields lead.
- The review team concluded that the fields were current and that the aims and learning outcomes were appropriate and were being met. The review team also concluded that the fields were well structured and complied with the Framework for Higher Education Qualifications and relevant subject benchmark statements.

G. Employability and work-based learning

The chemical and pharmaceutical industry is one of the UK's largest and most successful manufacturing sectors, contributing about £18.3 billion a year of Added Value to the UK's Gross Domestic Product (Chemical industry in the UK - statistics & facts, 2019*). The MSc in Pharmaceutical Science is designed to provide graduates with the high level skills and advanced knowledge that are increasingly required for the development, analysis and production of medicines and for work in clinical trials and regulatory affairs. Students will have the opportunity to study and explore recent trends in chemical, biological and biotechnological therapeutics. The course is ideal for graduates who wish to pursue a career in pharmaceutical production, marketing, sales, process development, regulatory affairs, public relations, medical statistics or clinical trials. The course would also prepare students to pursue academic careers in research. Recent surveys indicate most of our graduates finding employment/further education less than 6 months after graduation in many of the areas mentioned above. Research and development opportunities are extensive and varied, and include development of novel medical and veterinary diagnostic and therapeutic technologies, targeted and controlled drug delivery and other applications which involve biotechnology e.g. formulation of conventional as well as plasmid and subunit antigen vaccines.

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*https://www.statista.com/topics/5599/chemical-industry-in-the-uk/

One of the key employability skills at the postgraduate level is: articulation and demonstration of scientific knowledge on a chosen topic which is directly addressed in module CH7050 and also in CH7060 where students are required to present their work orally. Career in research is addressed in several modules i.e. CH7010 and CH7070 where students learn to use wide range of research techniques and make scientific communications involving critical analysis through the report and practical write-ups. The course offers an opportunity to enhance knowledge and to develop hands-on practical skills through modules such as CH7010, CH7050, CH7070 and also through project module CH7100. Past students have gained employment in the pharmaceutical industry, including Pfizer, GlaxoSmithKline, Wockhardt, contract research organisations such as PRA, Bristol labs. Several students have managed to obtain funded PhD positions in well reputed educational institutions across the UK and abroad.

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

Kingston University website: http://www.kingston.ac.uk/postgraduate-course/pharmaceutical-science-msc/
The Faculty of Science, Engineering and Computing: http://sec.kingston.ac.uk/

The School of Pharmacy and Chemistry: http://sec.kingston.ac.uk/about-SEC/schools/pharmacy-and-chemistry/

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 7					
		CH7100	CH7070	CH7050	CH7060	CH7010	CH7900
Knowledge & Understanding	A7	S					
	A6	S					
	A4		S	F	F		
	A3		S	S			
	A2		S	S	S		
	A1		S	S	S		
	A5	F	S	S	S		
Intellectual Skills	B7	F			S		
	B6	S	S		S		
	B5	F	S	S	S		

	B2	F		F	F		
	B3	F	S	F	F		
	B1	S	S	F	S		
	B4	F	S	S	S		
Practical Skills	C6	F	S				
	C5	F	S		S		
	C4			S	S		
	C3	F	S	S			
	C2	F	S	F			
	C1		F	F			
	C7	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.