

# Programme Specification

# Title of Course: BSc Pharmaceutical and Chemical Sciences (top-up year)

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| Version number | 3 |
| Faculty | HSSCE |
| School | LSPC |
| Department  | Pharmacy |
| 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 module can be found in the course VLE site and in individual Module Descriptors.

## SECTION 1: GENERAL INFORMATION

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| --- | --- |
| Award(s) and Title(s): | **BSc Pharmaceutical and Chemical Sciences (top-up year)** |
| Intermediate Awards(s) and Title(s): | **none** |
| FHEQ Level for the Final Award: | **Level 6** |
| Awarding Institution: | Kingston University |
| Teaching Institution: | Kingston University |
| Location: | *Penrhyn Road Campus* |
| Language of Delivery: | *English* |
| Modes of Delivery: | *Full time,*  |
| Available as: | *top up* |
| Minimum period of registration: | *FT 1 year* |
| Maximum period of registration: | *FT 2 years* |
| Entry Requirements:  | Completion of FD Pharmaceutical and Chemical Sciences |
| Programme Accredited by: | *Option module “Regulatory Affairs in Pharmaceutical Science” regulated by TOPRA*  |
| QAA Subject Benchmark Statements: |  |
| Approved Variants: |  |
| UCAS Code: |  |

For Higher or Degree Apprenticeship proposals only (delete if not applicable)

|  |  |
| --- | --- |
| Higher or Degree Apprenticeship standard: |  |
| Recruitment, Selection and Admission process: |  |
| End Point Assessment Organisation(s): |  |

## SECTION 2: THE COURSE

### Aims of the Course

The main aims of the BSc (Honours) degree (in addition to those of the Foundation Degree) are:

* to provide students with an in-depth understanding of topics relevant to pharmaceutical and chemical sciences
* to provide all students with the opportunities to develop their skills in searching for literature sources relating to specific areas of academic research.
* to develop critical thinking and problem solving through project work.
* to develop advanced practical skills related to specific subject areas
* to provide the students with the opportunities to develop their written and oral communications skills in order to be able to get across complex and detailed information to both specialist and non-specialist audiences.

Additionally for students taking the Regulatory Affairs Pathway:

* to provide students with an in-depth knowledge and understanding of core national and international pharmaceutical regulatory affairs and their application in pharmaceutical manufacturing, enabling students to apply regulatory requirements and guidance to medicines and medicinal products

### Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge, understanding and skills and other attributes in the following areas. On completion of the BSc(Honours) degree students will, in addition to the learning outcomes gained through the foundation degree programme, have gained an in depth knowledge and understanding of:

### 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 |
| A1 | Demonstrate a good knowledge and understanding of the core areas of pharmaceutical science including pharmaceutics, pharmaceutical chemistry, advance analytical, drug delivery and conducting an independent research project | B1 | Critically analyse and appraise both primary and secondary sources | C1 | Carry out laboratory work in pharmaceutics chemistry, life science and related subjects in a safe, competent and professional manner |
| A2 | Possess the mathematical, statistical and computational skills necessary for working in a scientific capacity in an academic, commercial or industrial context.  | B2 | Solve complex problems and undertake rigorous data analysis | C2 | Carry out COSHH safety assessments for any experiment and perform laboratory techniques safely and effectively |
| A3 | Competently and safely use a variety of modern scientific instruments and computers with dedicated software specific to areas of pharmaceutical and chemicals sciences. | B3 | Demonstrate the ability to be independent, autonomous learners. | C3 | Plan, conduct and report on complex experiments. |
| A4 | Demonstrate a good knowledge and understanding of the regulations applicable to the development, testing and marketing of pharmaceutical products. Interpret and use relevant guidelines  for example those from the ICH, EMA, and MHRA | B4 | Assemble data from a variety of sources and discern and establish connections and contradictions. | C4 | Use a range of scientific instruments, understand the principles of their operation and obtain reproducible experimental results |

In addition to the programme learning outcomes identified overleaf, the programme of study defined in this programme specification will allow students to develop a range of key skills as listed in the following Graduate and Academic Success Framework:

### Key Skills

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Self-Awareness Skills | Communication Skills | Digital and numerical skills | Interpersonal skills | Research Skills | Management and Leadership | Creativity and problem-solving skills |
| Take responsibility for own learning and plan for and record own personal development | Synthesise information to express ideas clearly in writing and the spoken word to diverse and multiple audiences  | Handle and understand number as required for context | Work well with others in a group or team | Identify and use effective ways to search and validate information  | Seek opportunities to initiate and determine the scope of a task/project | View problems from a diverse range of perspectives to find solutions  |
| Recognise own academic strengths and weaknesses, reflect on performance and progress and respond to feedback | Present, challenge and defend ideas effectively | Summarise and visualise numerical data | Work flexibly and respond to change | Critically evaluate information and use it appropriately | Seek opportunities to identify and secure resources needed to undertake the task/project; efficiently schedule and manage the resources | Seek opportunities to address global and long-term challenges  |
| Organise self effectively, agreeing and setting realistic targets, accessing support where appropriate and managing time to achieve targets | Actively listen to ideas of others in an unbiased way | Navigate, interact and contribute effectively, safely and legally with various digital platforms, including the web | Discuss and debate with others and make concessions to reach agreement | Apply the ethical requirements in both the access and use of information | Seek opportunities to set the direction, successfully complete and evaluate a task/project, revising the plan where necessary | Imagine, create and exploit solutions and more abstract ideas, including experimentation and risk-taking |
| Work effectively without supervision in unfamiliar contexts |  | Use personal and professional digital tools and environments  | Give, accept and respond to constructive feedback | Comply with legal requirements in both the access and use of information  | Seek opportunities to motivate and direct others to enable an effective contribution from all diverse participants | Work with complex ideas and problems, making evidence-based recommendations  |
|  |  | Use technologies to effectively communicate and collaborate across dispersed/global teams.  | Show sensitivity and respect for diverse values and beliefs | Accurately cite and reference information Sources |  | Enterprise skills (ability to anticipate, identify, and grasp opportunities)  |
|  |  |  |  |  |  | Commercial acumen  |

### 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 and specific additions that are sometimes required for accreditation by outside bodies (e.g. professional or statutory bodies that confer professional accreditation). Full details of each module will be provided in module descriptors and student module guides.

### Level 6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Core modules | Module code | Credit Value | Level  | Teaching Block |
| Project | CH6004 | 30 | 6 | TB1 and TB2 |
| Advanced Analytical Science | CH6007 | 30 | 6 | TB1 and TB2 |
|  |  |  |  |  |
| Topics in Pharmaceutical Science | CH6009 | 30 | 6 | TB1 and TB2 |
| Regulatory Affairs For Pharmaceutical ScienceOr Drug Development | CH 6400CH6008 | 3030 | 66 | TB1 and TB2TB1 and TB2 |

## Principles of Teaching, Learning and Assessment

The core programme and pathway comprising this course have been designed to take account of the KU Curriculum Design Principles. The course utilises a wide range of teaching and learning methods that will enable all students to be actively engaged throughout the course. The course has traditionally had a diverse cohort of students, attracting students of different educational background, age, gender, race, religion, sexual orientation and disability. As a result the curriculum has been designed to be as inclusive as possible. Teaching and learning methods are carefully crafted to suit the content and the learning outcomes of each specific module but also for the overall programme. Typically this involves using lectures to ensure that students have the key theoretical knowledge relating to the module before using strategies that allow the students to apply this knowledge in a variety of ways. Through group and seminar work, practical and laboratory sessions students are then able to develop more individual interests and personal and key skills. A blended learning approach will be adopted to cater for the learning needs of each individual student wherever possible.

A range of assessment methods will be used that enable students to, in the initial stages of the programme, demonstrate the acquisition of knowledge and, later on in the programme, higher level skills such as problem solving, and critical analysis. Methods include oral presentations, in-class tests, MCQs, examinations, laboratory reports and poster presentations, peer marking as well as informal Q and A in each learning setting. This variety in assessment methods will ensure that no students will be disadvantaged despite the disparate academic backgrounds of the student body. The assessment regime for each module has been designed to provide formative opportunities that allow students to practice and to receive feed forward on their performance in preparation for the summative assessment. Care will be taken to avoid assessment bunching.

In line with university policy, feedback is provided to students within 20 university days on all forms of assessment including formal examinations. The return dates of marked coursework are published in all module guides. Many modules in the course have an assessment component comprised of a collection of small 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.

Such coursework assessment will complement the testing of knowledge and skills in examination settings. The examinations themselves will also be presented in a variety of modes, ranging from calculations, problem solving and data analysis to MCQs and essay-type long answers. MCQs will be designed to test the same knowledge, concepts and problem-solving abilities that will be assessed by short answer questions (SAQs) and long answers in examinations.

All level six students are required to complete a ‘capstone’ project which allows them to demonstrate and apply the knowledge and skills that they have acquired throughout the whole of their course. The topic of the project will be negotiated with the Project Module Co-ordinator in dialogue with the individual project supervisor and where appropriate a student’s personal tutor who has a holistic overview of the students KU experience. The capstone project also allows students to develop and hone their research skills thus providing them with relevant practical experience for various employment opportunities and provide them with the foundations for further study if they wish to pursue this path.

Because of the importance of laboratory skills to the subject, there is also a requirement for a minimum of 80% attendance at practical sessions for progression to the next level of the course.

E-Technology plays an important role in enhancing learning and teaching throughout the Pharmaceutical Science course. Canvas, for example, is a virtual learning environment 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 Starboard allow the electronic recording of work done “on the board” in the classroom. The use of Turnitin allows students to recognise the dangers of plagiarism and Grademark and other electronic marking systems are increasingly used by staff to give students quicker and clearer feedback. A large range of modules make use of 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 practical work coursework. Students will also be provided with the opportunity to undertake formative on-line quizzes to support knowledge gained during structured academic sessions. The Respondus lockdown browser or similar is used for summative tests, where appropriate, giving the ability to provide instant feedback on students’ performance.

The final year project module is dominated by research-based teaching as students undertake research themselves under the expert guidance of project supervisors. This capstone module seeks to draw together and apply much of the knowledge and skills the students have acquired throughout their programme. Given the extended nature of the project, often involving many hours of laboratory-based research, students will acquire many of the skills necessary to succeed in the world of work especially as it pertains to scientifically orientated careers. Students are also encouraged to explore opportunities in summer research internships in the School and contribute to the Faculty’s Journal of Undergraduate Research or similar undertakings.

## Support for Students and their Learning

All BSc students will be supported in their study, taking into account the KU Curriculum Design Principles. The course utilises a wide range of teaching and learning methods that will enable all students be actively engaged throughout the course. A variety of teaching will be used to engage students in their learning, from lectures to workshops. Group work will be actively promoted, to help in peer learning. Practical sessions will help to implement theory taught in lectures. The workshops will allow for more one-on-one teaching between staff and students. Blended learning will again engage students and help identify areas for further study. A range of assessment methods will be used that enable students to demonstrate the acquisition of knowledge and skills. Methods include course work, oral presentations, in-class tests, MCQs, examinations, laboratory reports and poster presentations. The assessment regime will again be tailored to suit the learning outcomes of the modules. Both formative and summative assessment will be used.

Students are supported by:

* A Module Leader for each module
* A Course Leader to help students understand the programme structure
* Personal Tutors to provide academic and personal support
* Technical support to advise students on IT and the use of software
* A designated programme administrator
* An induction week at the beginning of each new academic session
* Canvas – a versatile on-line interactive intranet an 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
* Union of Kingston Students
* Careers and Employability Service and Student Life Centre

The use of personal tutors is well established in the School of Life Sciences, Pharmacy and Chemistry. Students will be allocated a personal tutor at the beginning of induction week and should have their first meeting in that week. Students keep the same personal tutor through Foundation Degree to BSc Top up. The personal tutor provides academic guidance and advice and will play a key role in supporting students in making the transition from one year to the next.

Meetings with personal tutors will focus on personal and career development building on those on the Foundation Degree. Students are encouraged to keep a record of their achievements and progress in skills development relevant to career and personal development. Level 6 is about making the most of this year in terms of success and moving on. So for instance at Level 6 students will be expected to work with their personal tutors to prepare a good quality CV ready for sending out to potential employers. Additionally at this level the student tutee will be recording, reflecting on and reporting back to the personal tutor participation in extracurricular activities to enable the tutor to give a personal and detailed reference for the student. Thus the personal tutor scheme allows the student to foster a personal academic relationship with a member of the teaching staff in their school. This will enable the personal tutor to write an informed and well-rounded reference for the student when they seek work placements and careers after graduation.

## 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 Committe with student representation
* Annual Monitoring and Enhancement
* Continuous Monitoring of courses through the Kingston Course Enhancement Programme (KCEP+)
* Student evaluation including Module Evaluation Questionnaires (MEQs), level surveys and the National Student Survey (NSS)
* Moderation policies
* Feedback from employers

## Employability and work-based learning

The core programme and the regulatory affairs pathway comprising the Pharmaceutical Science course are specifically tailored to equip students to work in one of the many roles that exist in the pharmaceutical industry and related areas of the public sector. Recent graduates have entered employment as: analytical chemistry development scientist, research and development in formulation, quality control analyst, process development chemist, Research and development, **clinical trials administrator, a clinical research associate,** Clinical Trial Project Manager**, medical publishing, medical devices marketing, Drug safety associate, production operator, accounts manager, pharmacovigilance officer,** registration compliance analyst, business development manager. Students interested in careers in research and development have pursued further study to PhD level.

The Industrial Advisory Board exists to inform the development of the programme outlined herein and to ensure that employers’ views are well represented. Here, employer representatives are be given a forum to express their views on the essential employability skills they would like to see developed in Kingston University undergraduates from the School of Life Sciences, Pharmacy and Chemistry.

The level 6 Project module builds skills module, to make students reflect on and develop the attributes that employers seek in graduates. These include independent learning, the ability to work in teams, time management skills, verbal and written communication skills. A number of these skills are also developed through group work and presentations in other modules. The regulatory affairs pathway has been designed explicitly to address the current skills required by the pharmaceutical industry in this important area. An important role of the Personal Tutor system is to encourage students to develop such skills through volunteering, sports activities, positions of responsibility in clubs and societies, student ambassador schemes and study 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.

## Other sources of information that you may wish to consult

General Pharmaceutical Council

[www.pharmacyregulation.org](http://www.pharmacyregulation.org)

Royal Pharmaceutical Society

[www.rpharms.com/](http://www.rpharms.com/)

Kingston University School of Pharmacy and Chemistry

<http://sec.kingston.ac.uk/about-SEC/schools/pharmacy-and-chemistry/>

## 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.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Level 6** |  |  |  |  |
|  | **Module code** | CH6004 | CH6007 | CH6008 (Optional) | CH6400(Optional) | CH6009 |
| **Knowledge & Understanding** | A1 | S | S | S | S | S |
|  | A2 | S |  | S | S | S |
|  | A3 | S |  | S | S | S |
|  | A4 |  |  |  |  | S |
| **Intellectual Skills** | B1 | S |  |  | S |  |
|  | B2 | S |  | S | S | S |
|  | B3 | S | S | S | S | S |
|  | B4 | S |  | S | S | S |
| **Practical Skills** | C1 | S |  | S | S | S |
|  | C2 | S | S | S | S | S |
|  | C3 |  |  | S | S |  |
|  | C4 | S | S |  |  | S |
|  |  | S |  | S | 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.**