

## PROGRAMME SPECIFICATION

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### Bachelor of Science with Honours (Fnd) in Pharmaceutical Science

<b>Awarding institution</b>	Liverpool John Moores University
<b>Teaching institution</b>	LJMU
<b>UCAS Code</b>	F194
<b>JACS Code</b>	F100
<b>Programme Duration</b>	Full-Time: 4 Years, Sandwich Thick: 5 Years
<b>Language of Programme</b>	All LJMU programmes are delivered and assessed in English
<b>Subject benchmark statement</b>	Chemistry (2012), Biosciences (2015), and Pharmacy (2002)
<b>Programme accredited by</b>	
<b>Description of accreditation</b>	
<b>Validated target and alternative exit awards</b>	<p>Bachelor of Science with Honours (Fnd) in Pharmaceutical Science</p> <p>Diploma of Higher Education in Pharmaceutical Science</p> <p>Diploma in Higher Education (SW) in Pharmaceutical Science</p> <p>Certificate of Higher Education in Pharmaceutical Science</p>
<b>Programme Leader</b>	Matthew Roberts

### Educational aims of the programme

To provide, for all students, a defined, integrated academic programme of study with clear learning outcomes.

To provide students with a comprehensive understanding and skills base to equip them for a career in pharmaceutical science, allied and other industries, and associated professions.

To develop critical, analytical problem-based learning skills and transferable skills to prepare the student for graduate employment.

To permit students to acquire a high level of vocationally-orientated practical, analytical and research skills.

To encourage students to make an academic and practical contribution to the discipline of pharmaceutical science.

To develop those learning, information technology, communication and reflective skills necessary to enable students to undertake independent study, and to participate in lifelong learning.

To develop new areas of teaching in response to the advance of scholarship and the needs of the community.

To encourage students to engage with the development of employability skills by completing a self-awareness statement.

In addition to the aims for the main target award, the sandwich programme aim is to provide students with an extended period of work experience at an approved partner that will complement their programme of study at LJMU. This will give the students the opportunity to develop professional skills relevant to their programme of study, as well as attitude and behaviours necessary for employment in a diverse and changing environment.

#### Alternative Exit/ Interim Award Learning Outcomes - Certificate of Higher Education

*A student who is eligible for this award will be able to:*

Reflect on the scientific skills acquired from the programme, and their future careers.

Develop a basic, practical and relevant mathematical and chemical foundation for the quantitative aspects of all Level 4 modules.

Understand the fundamentals of chemistry, basic human physiology, biochemistry and pharmacology to underpin pharmaceutical science.

Apply the skills needed for academic study and enquiry.

Utilise problem-solving skills relevant to pharmaceutical science

Collect, analyse, and interpret experimental data.

Evaluate his/her own academic and professional performance.

Take responsibility for personal and professional learning and development.

Understand career opportunities and challenges ahead.

### **Alternative Exit/ Interim Award Learning Outcomes - Diploma of Higher Education**

*A student who is eligible for this award will be able to:*

Reflect on the scientific skills required for the course and their future careers.

Possess a detailed knowledge and understanding of the chemical properties which are significant with respect to the involvement of drugs in both biochemical transformations and the interaction between medicinal agents and body chemistry.

Possess knowledge and understanding of the evaluation of the formulation, preparation, manufacture and quality control of sterile products including injections, ophthalmic products and radiopharmaceuticals.

Apply the skills needed for academic study and enquiry.

Critically appraise laboratory methods and the design of laboratory experiments, their implementation and interpretation of their results.

Utilise problem-solving skills to applied chemical and pharmaceutical science.

Plan and execute safely laboratory experiments with an awareness of good laboratory practice (GLP) and COSHH assessment.

Collect, analyse, and interpret experimental data.

Evaluate his/her own academic and professional performance.

Take responsibility for personal and professional learning and development.

Understand career opportunities and challenges ahead.

A student who successfully completes a placement year will be eligible for the Sandwich award and will, in addition to the above, be able to demonstrate the professional and personal skills necessary for effective employment within a professional environment.

### **Target award Learning Outcomes - Bachelor of Science with Honours (Fnd)**

*A student successfully completing the programme of study will have acquired the following subject knowledge and understanding as well as skills and other attributes.*

*A student who is eligible for this award will be able to:*

1. Demonstrate a knowledge and understanding of essential facts, concepts, principles and theories relating to the subject matter covered in their programme.
2. Reflect on the scientific skills required for the course and their future careers.
3. Present pharmaceutical science material and arguments clearly and correctly, in writing and orally, to both specialist and lay audiences.
4. Possess a detailed knowledge and understanding of the chemical properties which are significant with respect to the involvement of drugs in both biochemical transformations and the interaction between medicinal agents and body chemistry.
5. Develop an ability to assimilate, evaluate and present research results objectively.
6. Apply the skills needed for academic study and enquiry to an advanced level.
7. Adapt and apply knowledge and understanding of Chemistry to the solution of qualitative and quantitative problems.

8. Evaluate, summarise, and report research laboratory and literature data and relate them to underlying theory.
9. Design and construct laboratory work.
10. Demonstrate initiative and originality in the use of chemical knowledge and methodologies applied to the study of pharmaceutical science.
11. Develop an appreciation of the interdisciplinary nature of the nature of science and of the validity of different view points.
12. Demonstrate self-direction and initiative in the planning and safe execution of laboratory work, in line with good laboratory practice (GLP) and COSHH assessment.
13. Collect, analyse, and interpret experimental data
14. Communicate effectively in multi-skilled teams, establishing professional and ethical relationships.
15. Appreciate the requirement for responsible and ethical behaviour in the Chemical and allied industries, with particular reference to the environment.
16. Identify and work towards targets for personal, academic, professional and career development.
17. Communicate effectively with a wide range of individuals via discussion, written materials, use of image and presentations (oral and poster).
18. Self-evaluate academic and professional performance.
19. Utilise problem-solving skills, qualitative and quantitative, in a variety of theoretical and practical situations.
20. Demonstrate a wide range of study, IT, numerical and computational skills.
21. Manage time, prioritise workloads and recognise and manage personal emotions and stress.

## Teaching, Learning and Assessment

*The methods used to enable outcomes to be achieved and demonstrated are as follows:*

The acquisition of knowledge is promoted via formal taught sessions, primarily lectures supported by practical and sessions. Understanding is facilitated through seminars, workshops, tutorials, field projects, e-learning, group work, and independent study.

Testing of the knowledge base is through a combination of unseen written examinations and assessed coursework in the form of laboratory experiment write-ups, essays, presentations and coursework reports.

Lectures, practicals, seminars, tutorials, and case studies.

Written examinations, practical reports, coursework, evidence-based portfolio submissions, oral presentations.

Lectures, practicals, seminars, data handling workshops, and problem-based learning.

Laboratory reports, case study reports, and evidence-based portfolio submission.

Transferable/key skills are embedded in the modules of the programme. Examples include the use of spreadsheets and statistical computer packages to analyse data, the use of presentation packages to produce seminars and posters, group working, and the production of a transferable/key skills portfolio.

Oral presentations (individual and group), poster presentations, portfolio, and laboratory reports.

## Programme structure - programme rules and modules

### Study Abroad

Students will be offered the opportunity of study abroad at Level 5. Students can choose either Option A or Option B unless they undertake the Sandwich Year, in which case Option B is not available:

Option A: replacement of 60 credits of Level 5 with appropriate study abroad.

The programme will offer the opportunity of 60 credits of study at Level 5. Students will be enrolled on a 480 credit honours with study abroad programme. A 60 credit Level 5 study abroad module [5009PHASCI] will normally replace the semester 2 modules on the standard programme. This study abroad should cover the same learning outcomes as the modules being replaced. The modules to be studied in the host institution must be agreed in advance. The Level 5 mean for the final award mark will be calculated based upon the 120 credits at Level 5.

Option B: additional study year abroad following Level 5.

The programme will offer the opportunity of an additional study year abroad following Level 5. Students will be

enrolled on a 600 credit honours with study abroad programme. Of those 600 credits, 120 will be taken via a Level 5 study abroad module [5008PHASCI], the modules to be studied in the host institution must be agreed in advance. The Level 5 mean for the final award mark will be calculated based upon the 240 credits at Level 5.

#### Sandwich Year [5007PHASCI]

The aim is to provide students with an extended period of work experience at an approved partner that will complement their programme of study at LJMU. This will give the students the opportunity to develop professional skills relevant to their programme of study, as well as attitude and behaviours necessary for employment in a diverse and changing environment.

The placement year will follow Level 5 and students will be enrolled on a 600 credit honours sandwich programme and take the module 5007PHASCI (Sandwich Year - Pharmaceutical Science). The Level 5 mean for the final award mark will be calculated based upon the 240 credits at Level 5.

Level 6	Potential Awards on completion	Bachelor of Science with Honours (Fnd)
Core	Option	Award Requirements
6000PHASCI RESEARCH METHODS AND PROJECT (40 credits) 6001PHASCI INDUSTRIAL DRUG DEVELOPMENT (20 credits) 6002PHASCI ADVANCED PHARMACEUTICAL ANALYSIS (20 credits) 6003PHASCI ADVANCED DELIVERY SYSTEMS (20 credits) 6004PHASCI CLINICAL DRUG DEVELOPMENT (20 credits)		120 core credits at level 6 0 option credits at level 6
Level 5	Potential Awards on completion	
Core	Option	Award Requirements
5001PHASCI PHARMACEUTICAL FORMULATION (20 credits) 5002PHASCI SYNTHETIC AND NATURAL DRUGS (20 credits) 5003PHASCI PRINCIPLES OF PHARMACOLOGY (20 credits) 5004PHASCI STERILE PHARMACEUTICAL PRODUCTS (20 credits) 5005PHASCI PHARMACEUTICAL ANALYSIS (20 credits) 5006PHASCI INTEGRATED APPROACHES TO THERAPEUTICS (20 credits)		120 core credits at level 5 0 option credits at level 5
Level 4	Potential Awards on completion	
Core	Option	Award Requirements
4001PHASCI PHYSICAL PHARMACEUTICS (20 credits) 4002PHASCI ORGANIC CHEMISTRY (20 credits) 4003PHASCI PRINCIPLES OF HUMAN BIOLOGY (20 credits) 4004PHASCI FORMULATION SCIENCE (20 credits) 4005PHASCI ANALYTICAL CHEMISTRY (20 credits) 4006PHASCI BIOLOGICALLY ACTIVE MOLECULES (20 credits)		120 core credits at level 4 0 option credits at level 4
Level 3	Potential Awards on completion	
Core	Option	Award Requirements
3402FNDSCI INTRODUCTORY		120 core credits at level 3

CHEMISTRY AND CELL BIOLOGY (20 credits) 3404FNDSCI FUNDAMENTALS OF PHYSICAL AND INORGANIC CHEMISTRY (20 credits) 3408FNDSCI FUNDAMENTALS OF ORGANIC CHEMISTRY (20 credits) 3410FNDSCI SKILLS AND PERSPECTIVES IN BIOMOLECULAR SCIENCES 1 (20 credits) 3411FNDSCI SKILLS AND PERSPECTIVES IN BIOMOLECULAR SCIENCE 2 (20 credits) 3412FNDSCI HUMAN ANATOMY AND PHYSIOLOGY (20 credits)		0 option credits at level 3
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## Information about assessment regulations

All programmes leading to LJMU awards operate within the University's Academic Framework.  
<https://www.ljmu.ac.uk/about-us/public-information/academic-quality-and-regulations/academic-framework>

## Opportunities for work-related learning ( location and nature of activities)

The Pharmaceutical Sciences programme offers the option of a sandwich route, which involves 1 year of work experience in a specialist field as well as the possibility of Erasmus exchange. The sandwich placement occurs at the end of Level 5 and the training allows students to develop their professional and technical skills. Work related learning is delivered throughout the programme.

## Criteria for admission

### A/AS Level

Minimum points required from qualifications: 88 UCAS Points

Minimum number of A Levels required: 2

Subject specific requirements: Grade C or above in Chemistry and preferably one further science subject

Is general studies acceptable? No

Are AS level awards acceptable? Acceptable only when combined with other qualifications

### BTEC National Diploma

BTEC applicants should hold or be studying an appropriate diploma and have (or expect to obtain) a pass with at least 3 merit grades at level 3 in appropriate units.

### AVCE

AVCE applicants should have (or expect to obtain) 88 points in an appropriate discipline (normally science).

### Irish Leaving Certificate

Applicants must have passed (or expect to pass) their Irish Higher exams with at least grade BBC in 3 subjects, 2 of which must be in sciences.

### Scottish Higher

Applicants must have passed (or expect to pass) their Scottish Higher exams with at least grade BBC in 3 subjects, 2 of which must be in sciences.

### International Baccalaureate

Applicants must have (or expect to obtain) the full award including grade 5 in an appropriate science.

### Access

Access to HE Diploma in a relevant subject including Distinctions in units in Chemistry.

### Higher national diploma

Applicants with either a HNC or HND will be considered on an individual basis and may be eligible for some

recognition of prior learning.

#### **Other**

In common with standard University policy, applicants should have GCSE passes in Mathematics and English with a minimum grade C, or equivalent.

#### **Mature entry**

Approved science access or foundation course. Students aged 21 or over who do not meet the requirements listed may be admitted provided that there is sufficient evidence (interview) that the applicant has the necessary motivation, knowledge and study skills to complete the course successfully.

#### **Overseas qualifications**

A wide variety of qualifications may be acceptable provided that they equate to UK requirements. They should also provide evidence of English language ability equivalent to 6.0 IELTS.

## **External Quality Benchmarks**

All programmes leading to LJMU awards have been designed and approved in accordance with the UK Quality Code for Higher Education, including the Framework for Higher Education Qualifications in the UK (FHEQ) and subject benchmark statements where applicable.

The University is subject to periodic review of its quality and standards by the Quality Assurance Agency (QAA). Published review reports are available on the QAA website at [www.qaa.ac.uk](http://www.qaa.ac.uk)

Programmes which are professionally accredited are reviewed by professional, statutory and regulatory bodies (PSRBs) and such programmes must meet the competencies/standards of those PSRBs.

## **Support for students and their learning**

The University aims to provide students with access to appropriate and timely information, support and guidance to ensure that they are able to benefit fully from their time at LJMU. All students are assigned a Personal Tutor to provide academic support and when necessary signpost students to the appropriate University support services.

Students are able to access a range of professional services including:

- Advice on practical aspects of study and how to use these opportunities to support and enhance their personal and academic development. This includes support for placements and careers guidance.
- Student Advice and Wellbeing Services provide students with advice, support and information, particularly in the areas of: student funding and financial matters, disability, advice and support to international students, study support, accommodation, health, wellbeing and counselling.
- Students studying for an LJMU award at a partner organisation will have access to local support services

## **Methods for evaluating and improving the quality and standards of teaching and learning**

#### **Student Feedback and Evaluation**

The University uses the results of student feedback from internal and external student surveys (such as module evaluations, the NSS and PTES), module evaluation questionnaires and meetings with student representatives to improve the quality of programmes.

#### **Staff development**

The quality of teaching is assured through staff review and staff development in learning, teaching and assessment.

#### **Internal Review**

All programmes are reviewed annually and periodically, informed by a range of data and feedback, to ensure quality and standards of programmes and to make improvements to programmes.

#### **External Examining**

External examiners are appointed to programmes to assess whether:

- the University is maintaining the threshold academic standards set for awards in accordance with the FHEQ and applicable subject benchmark statements
- the assessment process measures student achievement rigorously and fairly against the intended

outcomes of the programme(s) and is conducted in line with University policies and regulations

- the academic standards are comparable with those in other UK higher education institutions of which external examiners have experience
- the achievement of students are comparable with those in other UK higher education institutions of which the external examiners have experience

and to provide informative comment and recommendations on:

- good practice and innovation relating to learning, teaching and assessment observed by external examiners
- opportunities to enhance the quality of the learning opportunities provided to students

**Please note:**

*This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content, teaching, learning and assessment methods of each module can be found in module and programme guides.*