

Programme specification

1. Overview/ factual information

Programme/award title(s)	BSc (Hons) Biomedical Sciences (Chemical & Pharmaceutical Sciences)
Teaching Institution	Leeds City College
Awarding Institution	The Open University (OU)
Date of latest OU validation	July 2016
Next revalidation	July 2021
Credit points for the award	120 credits for BSc (Hons)
UCAS Code	CF16
Programme start date	September 2016
Underpinning QAA subject benchmark(s)	Biomedical Sciences 2015, Chemistry 2014, Biosciences 2015
Other external and internal reference points used to inform programme outcomes	Good Laboratory Practice (Directive 2004/10/EC and Directive 2004/9/EC); COSHH, CLP and REACH safety and labelling guidelines for storage of chemicals. Institute of Biomedical Sciences National Occupational Standards relevant to Biomedical Science, Analytical Science and Drug Development.
Professional/statutory recognition	None
Duration of the programme for each mode of study (P/T, FT,DL)	Full Time and Part Time
Dual accreditation (if applicable)	n/a
Date of production/revision of this specification	July 2016

2.1 Educational aims and objectives

The overall aims of the programme are to produce graduates who:

- Have a clear, in-depth and confident knowledge of biomedical science, synthetic and analytical chemistry and their application in industry.
- Have an appreciation of the range of techniques available to chemists to prepare a target molecule and the strategies employed in maximising efficiency and minimising environmental impact of such syntheses.
- Are able to use a range of instrumental techniques in the analysis of chemical components in a range of contexts.
- Have the ability to work confidently and independently, are able to reflect and learn from their workplace experience in or study of a relevant industry and to relate this experience to theory, knowledge and good practice.
- Are “good employees” having both technical competencies and professional aptitudes with a clear understanding of the industry and workplace.
- Have both detailed subject knowledge and analytical understanding including practical experience which relates to the bioscience industry.

2.2 Relationship to other programmes and awards

(Where the award is part of a hierarchy of awards/programmes, this section describes the articulation between them, opportunities for progression upon completion of the programme, and arrangements for bridging modules or induction)

3. Programme outcomes

Intended learning outcomes are listed below.

3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>A1 Plan, undertake and evaluate a negotiated self-managed major project involving scientific research (laboratory and/or literature based) which uses knowledge of chemistry</p> <p>A2 Demonstrate detailed knowledge of biomedical science.</p> <p>A3 Creatively and critically appraise and evaluate an aspect of biomedical science</p>	<p>Key Learning & Teaching Strategy Methods</p> <p>The programme will place strong emphasis on providing a solid practical experience which will enhance and embed theoretical knowledge allowing learners to develop valuable skills in addition to confident understanding. These laboratory and lecture experiences will be supported by workshops and problem-based classes with provision of on-line guided learning and self-assessment. Subject-specific VLE areas hosted on the Moodle platform also offer extension and support materials which can be accessed at any time by students with an internet connection. Students will use reflective activities for learning and development of advanced practical skills, such as experimental design and planning some of which will be entered into through the dissertation module, allowing learners to develop valuable skills for the workplace in addition to confident understanding. Group and individual presentations will be used to strengthen student learning and to provide a basis for industry-style assessment, developing employability skills. Lectures and seminars will include specialized speakers with research experience and invited industry specialists.</p> <p><u>Key Assessment Strategy/Methods</u></p>

3A. Knowledge and understanding

Each module has both formative and summative assessment including early assessment to support transition. All modules have assessment which divides the meeting of learning outcomes so that achievement is balanced over two assessments. All outcomes are assessed in a summative manner but supported with formative work in preparation such as practice questions or online quizzes.

Assessment guidelines have been followed in terms of the amount and extent of assessment with detailed attention to the workload that each piece places on the student. A variety of assessment methods are used including viva, written and laboratory practical work to provide a good experience in preparation for employment. The team ensures this through good working relationships in addition to a commitment to prepare students for entry into the science industry. Feedback is delivered in a variety of ways including, written, online and verbal within appropriate time scales (immediate during laboratory work, moderated and within three weeks for summative work for example).

Design of assessment wherever possible offers an experience similar to a possible work based scenario in the industry.

3B. Cognitive skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
B1 Evaluate scientific material (information or data gathered from literature sources or measured in the laboratory) to inform independently- justified conclusions.	As above
B2 Apply knowledge to produce balanced and logical argument in a scientific context.	
B3 Use appropriate methods to identify solutions to complex scientific problems with reference to ethical guidelines where appropriate.	

3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
C1 Operate ethically in response to scientific problems, data or information	As above
C2 Work independently to meet defined goals	

3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
D1 Plan manage and use new knowledge acquired	As above
D2 Communicate clearly and fluently in a scientific style, presenting argument in a professional manner	

4. Programme Structure

Level 6			
Modules	Credits	Core/ Option	Compensatable
Dissertation	40	Core	No
Research methods	20	Core	Yes
Organic Synthetic Strategies and Modelling	20	Core	Yes
Quality Control and Further Analytical Methods	20	Core	Yes
Applied Biomedical Techniques	20	Option	Yes
Recombinant Technology	20	Option	Yes

Options are subject to sufficient numbers of students wishing to study that module.

For the award of ordinary degree the following modules must be passed:

Course Level	Modules	Credits
6	Quality control & Further Analytical Methods	20
6	Organic Synthetic Strategies and Modelling	20
<i>One of the options modules</i>		
6	Applied Biomedical Techniques	20
6	Recombinant technology	20

Full time route

The course will run over two consecutive days per week to enable students to attend fully whilst maintaining outside commitments.

The Dissertation module is run throughout the year, allowing students' time to develop and fully interrogate a scientific brief. This is supported by the first semester delivery of Research Methods which will support achievement and excellence in the dissertation module. The laboratory based Organic Synthetic Strategies and Modelling provides an opportunity to develop industrially-relevant laboratory skills as well as emphasising the importance of synthetic chemistry in the wider process of the design and production of new chemical substances such as new medicines. In semester 2 students will learn about the techniques used to analyse chemical compounds and how this is crucial in monitoring and maintaining quality in modern chemical production processes. Students will also develop an understanding of modern molecular biology through study of either the Recombinant Technology or Applied Biomedical Techniques option.

Semester One	Semester Two
Dissertation (40 credits)	
Research Methods (20 credits)	Quality Control and Further Analytical Methods (20 credits)
Organic Synthetic Strategies and Modelling (20 credits)	<i>Either: Applied Biomedical Techniques(20 credits)</i> <i>Or: Recombinant technology (20 credits)</i>

Part-time Route

The part-time programme is offered over one day per week for two years. It is seen as an opportunity for students for who full-time is too great a commitment but additionally targeting students on apprenticeship programmes or employees on day release schemes. Part-time would enter as in-fill with full-time groups running concurrently. A typical timetable for a student progressing through a part-time route is given below, although this may differ slightly depending on the needs of the student.

Chemical & Pharmaceutical Year 1

Semester One	Semester Two
Organic Synthetic Strategies and Modelling (20 credits)	<i>Either: Applied Biomedical Techniques(20 credits)</i> <i>OR Recombinant technology (20 credits)</i>

	Quality Control and Further Analytical Methods (20 credits)
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Chemical & Pharmaceutical Year 2

Semester One	Semester Two
Dissertation (40 credits)	
Research Methods (20 credits)	

5. Distinctive features of the programme structure

- **Where applicable, this section provides details on distinctive features such as:**
- **where in the structure above a professional/placement year fits in and how it may affect progression**
- **any restrictions regarding the availability of elective modules**

where in the programme structure students must make a choice of pathway/route

The programme places an emphasis on the balance between core scientific theory and skills along with a range of industry foci with a strong basis in laboratory practical skills and competencies.

Students are taught in small groups by a relatively small, dedicated team of lecturers on a compact college campus. Staff are approachable and accessible to all students.

Producing students that have the tools to succeed within employment with appropriate transferable skills specified by our industrial contacts. Again, this is highlighted by the outstanding range of opportunities to develop practical scientific experience valued by the sector.

Students have access to an excellent range of facilities including: well-equipped modern laboratories with excellent technical support. Students will have the opportunity to carry out a wide range of laboratory procedures.

Laboratories are well equipped with multi-media facilities to deliver quality outcomes to a meet the needs of a diverse range of students.

Research experience of staff on the team is both international and wide ranging where the majority of the team has worked at the cutting edge of knowledge in leading laboratories in both the UK and elsewhere.

We have strong links with regional employers who are invited in to enhance the student experience and to continue the exposure to professional rather than academic science environments.

The qualification offers an excellent opportunity to work across disciplines. This provides an innovative and contemporary way of creatively approaching the development of scientific skills and this is particularly well-evidenced within the Dissertation module.

The teaching team continues to expand recruiting further members of staff who have research and industry experience as well as academic qualifications

The Yorkshire and Humber region offers a wide and expanding range of potential employers in the STEM sector. Within the region the urban district of Leeds and Bradford offers a range of employers for students with strong science and employability skills – this includes both biosciences and healthcare industry with biotechnology a growing target throughout the region. We maintain connections within industry and are able to attract speakers of international repute to address our students.

6. Support for students and their learning

The programme adopts the approach to student learning support as identified in Scheme programme specification. Tailored induction support begins before students arrive with the admissions team, and is reinforced at the detailed induction programme. A robust communications system functions to give students access to lecturers and management; this includes e-mail, the VLE and notice boards in studios. All necessary information about the programme is provided by means of the student handbook, module handbooks and the VLE. Each student is allocated a tutor for regular tutorials and personal development planning. This

is implemented in the first term and continued throughout the year of study. There is an extensive range of learning resources in the Library, supported by specialist staff. The College provides an extensive range of services for students, including support for those with special needs

7. Criteria for admission

Achievement of FdSc Biomedical Science programme or other FdSc, HND or other external equivalent in a relevant scientific subject with an average score of 50% and a positive reference. International qualifications will be assessed against these criteria. Speakers of other languages will need to possess an IELTS band score of 6.0 (with no-less than 5.5 in any one element) or a recognised English Level 2 qualification.

We welcome applications from candidates who may not precisely match the academic criteria, but can demonstrate experience in their chosen field as well as academic achievement at level 5. Candidates in this category will be interviewed to assess their suitability for the course and asked to provide a portfolio of evidence to support their application. The course structure actively supports claims for Accreditation of Prior Learning (APL).

8. Language of study

English

9. Information about assessment regulations

Dissertation- non compensatable

10. Methods for evaluating and improving the quality and standards of teaching and learning.

In addition to the Annual Programme Monitoring process the following mechanisms are in operation:

- Peer review
- Annual Planning
- Peer Observation
- Student module reviews
- Students voice sampled through happy sheets
- Tutor module reviews
- Enrolment and induction reviews
- Course Committee meetings
- Pathway Committee meetings
- Student Pathway meeting
- Cross college quality and enhancement committee meeting

Annexe 1: Curriculum map

Annexe 2: Map of Outcomes to Modules

Annexe 3: Map of Teaching and Learning Methods

Annexe 4: Assessment Timetable

Annexe 1 - Curriculum map

This table indicates which study units assume responsibility for delivering (shaded) and assessing (✓) particular programme learning outcomes.

Map of Outcomes to Modules

Module Titles	A1	A2	A3	B1	B2	B3	C1	C2	D1	D2
Organic Synthetic Strategies and Modelling		✓			✓			✓	✓	
Dissertation	✓		✓	✓	✓	✓	✓	✓	✓	✓
Research Methods	✓		✓	✓			✓	✓	✓	
Quality Control and Further Analytical Methods		✓		✓		✓		✓	✓	
<i>Applied Biomedical Techniques</i>	✓	✓			✓		✓			✓
<i>Recombinant Technology</i>		✓		✓		✓				✓

Annexe 2 - Map of Teaching and Learning Methods

Level 6

	Lectures	Seminars	Tutorials	Practical	Demonstrations	Case studies	Group activities	Guest speakers
Organic Synthetic Strategies and Modelling	✓	✓	✓	✓	✓	✓	✓	
Dissertation	✓	✓	✓	✓	✓		✓	
Research Methods	✓	✓	✓				✓	
Quality Control and Further Analytical Methods	✓	✓	✓	✓	✓		✓	
Applied Biomedical Techniques	✓	✓	✓	✓	✓		✓	
Recombinant Technology	✓	✓	✓	✓	✓		✓	

Annexe 3 - Map of Assessment Methods

Level 6

	Laboratory activity with report	Assignment	Research project	Reflective Journal	Examination	Case study	Viva Voce Oral Exam
Organic Synthetic Strategies and Modelling	30%				50%		
Dissertation			70%				30%
Research Methods					30%	70%	
Quality Control and Further Analytical Methods			30%		70%		
Applied Biomedical Techniques	30%				70%		
Recombinant Technology		30%			70%		

Annexe 4: Assessment Timetable

Full Time

Module	Assessment I	Assessment II
Organic Synthetic Strategies and Modelling	9 th November 2016	18 th January 2017
Dissertation	24 th April 2017	24 th April 2017
Research Methods	28 th November 2016	18 th January 2017
Quality Control and Further Analytical Methods	27 th March 2017	5 th June 2017
<i>Applied Biomedical Techniques</i>	27 th March 2017	5 th June 2017
<i>Recombinant Technology</i>	27 th March 2017	5 th June 2017

Part Time

	Module	Assessment I	Assessment II
Year One	Organic Synthetic Strategies and Modelling	9 th November 2016	18 th January 2017
	<i>Applied Biomedical Techniques</i>	27 th March 2017	5 th June 2017
	<i>Recombinant Technology</i>	27 th March 2017	5 th June 2017
Year Two	Dissertation	24 th April 2017	24 th April 2017
	Research Methods	28 th November 2016	18 th January 2017