UNIVERSITY of BRADFORD

Faculty of Life Sciences

Programme Specification

Programme title: BSc (Hons) Chemistry

Academic Year:	2018/19
Degree Awarding Body:	University of Bradford
Final and interim award(s):	BSc (Honours) [Framework for Higher Education Qualifications (FHEQ) level 6] BSc [Framework for Higher Education Qualifications (FHEQ) level 6] Diploma of Higher Education [Framework for Higher Education Qualifications (FHEQ) level 5] Certificate of Higher Education [Framework for Higher Education Qualifications (FHEQ) level 4]
Programme accredited by:	Subject to The Royal Society of Chemistry[1]
Programme duration:	3 Years Full Time
UCAS code:	F100
QAA Subject benchmark statement(s):	Chemistry (2015)
Date of Senate Approval:	
Date last confirmed and/or minor modification approved by Faculty Board	February 2018

Introduction

The Chemistry programmes at the University of Bradford are designed around the university's key mission statement 'Making Knowledge Work'. Our degrees will give students a solid background in the chemical sciences, but then introduce students to the application of chemistry in specific areas of modern chemistry. These areas have been chosen to reflect the main employment destinations for 21st century chemistry graduates: Materials Chemistry, Analytical Chemistry, Medicinal Chemistry and Computational Chemistry.

Our degrees have been structured to give students choice and flexibility. During the first two years, students will develop a sound understanding of theoretical and practical aspects of chemistry, with core content delivered across the traditional areas of organic, inorganic and physical chemistry. However, we believe that an intellectually fulfilling university experience should allow students to sample subjects from outside the Chemistry subject area. Hence all our chemistry courses

[1] Students can apply for membership of the Royal Society of Chemistry (RSC)

allow students to take 20 credits of elective modules in stages 1 and 2, with subjects offered from across the university's teaching portfolio.

The third year will introduce students to specialist content in medicinal, materials and analytical chemistry. Students will also have the opportunity to study a specific subject to a greater depth during an extended dissertation.

As a Bradford Chemistry graduate, students will be equipped to deploy the skills that have developed across the programme to 'Make Knowledge Work'.

Programme Aims

The programme is intended to:

- develop an enthusiasm for chemistry and an appreciation of its application in different contexts
- provide opportunities for students to develop a systematic knowledge and understanding of the core principles of chemistry
- enable students to develop a core range of chemistry-related practical skills
- develop students' ability to think critically and creatively
- provide students with opportunities to study subjects outside of core chemistry
- develop collaborative and group working skills
- develop awareness of sustainability in the context of the chemical sciences
- equip students with subject and key skills necessary to facilitate transition to employment in both chemical and non-chemical employment or further study
- extend students' comprehension of key chemical concepts and provide an in-depth understanding of applied areas of chemistry
- provide a supportive educational environment, which meets the needs of students from a variety of backgrounds
- enable students to become an autonomous learner and prepare students for the lifelong learning skills required to be adaptable over the course of their career

Programme Learning Outcomes

To be eligible for the award of Certificate of Higher Education at FHEQ level 4, students will be able to:

LO1 Describe the physical world using the language of chemistry.

LO2 Describe chemical reactions in terms of the change in structure of organic and inorganic compounds and materials, and in the change of measurable physical attributes of these.

LO3 Accurately and reliably communicate the results of practical experiments in sufficient detail to allow the experiment to be reproduced from their description alone.

LO4 Locate the information required to handle potentially hazardous material with due reference to COSHH protocols and regulations, and risk assessment procedures.

LO5 Work collaboratively to analyse a given problem, and to prepare an oral presentation.

LO6 Quantify the environmental impact of experiments using Green Chemistry metrics.

Additionally, to be eligible for the award of Diploma of Higher Education at FHEQ level 5, students will be able to:

LO7 Interpret the structure and reactivity of organic and inorganic molecules and compounds by considering appropriate bonding models.

LO8 Discuss the way in which organic and inorganic compounds react at a molecular level with emphasis on mechanistic tools of interpretation.

LO9 Explain physical processes, both in terms of classical thermodynamics and in terms of the quantisation of energy.

LO10 Interpret the results of practical experiments, commenting specifically on the significance of the associated data produced.

LO11 Use appropriate technology and media to effectively communicate scientific ideas to their peers.

LO12 Evaluate their skill sets against subject-specific requirements and identify areas for professional and personal development.

LO13 Establish a collaborative approach to tackling chemical problems.

Additionally, to be eligible for the award of Ordinary Degree of Bachelor at FHEQ level 6, students will be able to:

LO14 Accurately apply the range of theories contained within the sub-disciplines of organic, inorganic and physical chemistry to interdisciplinary areas of the chemical sciences.

Additionally, to be eligible for the award of Honours Degree of Bachelor at FHEQ level 6, students will be able to:

LO15 Solve scientific problems by effectively consulting the primary scientific literature and utilising specialist software.

LO16 Work independently to appraise critically an area of current research in the chemical sciences.

LO17 Use mechanistic concepts to rationalise and discuss the outcome of complex reactions.

LO18 Articulate complex scientific arguments in an interview setting.

Curriculum

Stage 1

FHEQ Level	Module Title	Type (Core/ Option / Elective)	Credits	Semester(s)	Module Code
4	Organic Chemistry 1	Core	20	1 + 2	CFS4023-B
4	Physical Chemistry 1	Core	20	1 + 2	CFS4024-B
4	Inorganic Chemistry 1	Core	20	1 + 2	CFS4022-B
4	Practical Chemistry 1	Core	40	1 + 2	CFS4026-D

4/5	Elective	Elective	20		-----

At the end of stage 1, students will be eligible to exit with the award of Certificate of Higher Education if they have successfully completed at least 120 credits and achieved the award learning outcomes.

Stage 2

FHEQ Level	Module Title	Type (Core/ Option/ Elective)	Credits	Semester(s)	Module Code
5	Organic Chemistry 2	Core	20	1 + 2	CFS5017-B
5	Physical Chemistry 2	Core	20	1 + 2	CFS5018-B
5	Inorganic Chemistry 2	Core	20	1 + 2	CFS5016-B
5	Practical Chemistry 2	Core	40	1 + 2	CFS5019-D
4/5	Elective	Elective	20		

At the end of stage 2, students will be eligible to exit with the award of Diploma of Higher Education if they have successfully completed at least 240 credits and achieved the award learning outcomes.

Stage 3

FHEQ Level	Module Title	Core/ Option	Credits	Semester(s)	Module Code
6	Introduction to Polymer and Colloid Science	Core	20	1	CFS6015-B
6	Bio-organic and Bio-inorganic Chemistry	Core	20	1	CFS6014-B
6	Advanced Laboratory and Research Skills	Core	40	1 + 2	CFS6030-D
6	Organic Chemistry 3	Core	20	2	CFS6017-B
6	Molecular Analysis	Core	20	2	CFS6016-B

Students will be eligible to exit with the award of Ordinary Degree of Bachelor if they have successfully completed 120 credits in both Level 4 and 5 and 60 credits at level 6 and achieved the award learning outcomes.

Students will be eligible for the award of Honours Degree of Bachelor if they have successfully completed at least 360 credits and achieved the award learning outcomes.

Placement and/or Study Abroad

This programme does not provide the option for students to undertake a work placement or period of study abroad. Students wishing to take this option will be transferred to the *4* year MChem Chemistry (Industrial Experience) programme.

For further information about study abroad opportunities please refer to http://www.bradford.ac.uk/international/erasmus-and-international-exchanges/

For further information about placement opportunities please refer to

http://www.bradford.ac.uk/life-sciences/chemistry-and-forensic-sciences/careers/research-placements/

Learning and Teaching Strategy

The programme articulates with the Teaching and Learning strategies of the University. Students will be exposed to a variety of teaching methods designed to develop the learning outcomes and to cater for different preferences for learning. A wide variety of teaching methods appropriate to the learning outcomes of the individual modules is employed throughout the programme. These methods progressively focus on student-centred approaches to learning. Thus, students will be expected to take responsibility for their learning as they progress through the programme. In this way, students will develop the attributes needed for life-long learning and continuing professional development.

Learning outcomes 1-14, 17 and 18 will be developed in a number of modules, through a mix of lectures, seminars, laboratory practicals, workshops, case studies and directed study. Directed study will include directed reading of selected textbooks, specified source literature and open learning materials, directed Web-based materials, report writing and other assignments. In addition individual project/dissertation work will further help to develop learning outcomes 15 and 16.

Assessment Strategy

Students will demonstrate their achievement via written closed-book examinations using constructed (essays, short answers) and selected response (MCQ) questions and a variety of coursework assignments, including laboratory reports, oral presentations and dissertations.

The development of learning outcomes 3, 4, 6 and 10 will be through involvement in laboratory, small-group workshops, case-based work and projects (individual and small group). They will be assessed by critical appraisal, case analysis and critique, case presentations, laboratory reports and dissertations.

Assessment Regulations

This Programme conforms to the standard University Assessment Regulations which are available at the link below

http://www.bradford.ac.uk/aqpo/ordinances-and-regulations/

However, there is 1 exception to these regulations as listed below:

- Students who, at initial attempt, do not achieve a module mark of 35.0% or more for Practical Chemistry 1 (stage 1 students) or Practical Chemistry 2 (stage 2 students) will forfeit the right to supplementary assessment and will be required to repeat the modules with attendance.

Admission Requirements

The University welcomes applications from all potential students and most important in the decision to offer a place is our assessment of a candidate's potential to benefit from their studies and of their ability to succeed on this particular programme. Consideration of applications will be based on a combination of formal academic qualifications and other relevant experience.

The **minimum** entry requirements for the programme are as follows:

A typical offer to someone seeking entry through the UCAS scheme would be 112 UCAS points (equivalent to BBC) with at least 40 points in Chemistry (old tariff 280 points with at least 100 points in Chemistry). GCSE passes should include: English, Mathematics and a Science at grade C or 4.

The UCAS **tariff** applicable may vary and is published here www.brad.ac.uk/chemistry

Applications are welcome from students with non-standard qualifications or mature students (those over 21 years of age on entry) with significant relevant experience.

On completion of a UCAS form students will be invited to the School for an Open Day when they will have the opportunity to meet staff, view the facilities and discuss "the Bradford experience" with current students.

Recognition of Prior Learning

If applicants have prior certificated learning or professional experience which may be equivalent to parts of this programme, the University has procedures to evaluate and recognise this learning in order to provide applicants with exemptions from specified modules or parts of the programme.

Minor Modification Schedule

Version Number	Brief description of Modification	Date of Approval (Faculty Board)
2	Introduction of new 40-credit module CFS6030-D Advanced Laboratory & Research Skills (replaces CFS6018-B & CFS6021-B). Change to delivery period for CFS6014-B and CFS6017-B.	09 February 2018