Programme Specification

BSc (Hons) Biomedical Science (with placement)

School:	Science, Technology and Health
Subject area:	Biomedical Science
Entry from academic year:	2023-24
in the month(s) of:	September
Awarding institution:	York St John University
Teaching institution:	York St John University
Delivery location:	York St John University
Programme/s accredited by:	Institute of Biomedical Science Royal Society of Biology
Exit awards:	Certificate of Higher Education Biological Sciences Diploma of Higher Education Biological Sciences Diploma of Higher Education Biological Sciences (with placement) BSc (Ord) Biological Sciences BSc (Hons) Biological Science BSc (Hons) Biomedical Science
UCAS code / GTTR / other:	7Y63
Joint Honours combinations:	Not applicable
QAA subject benchmark statement(s):	Biomedical Science (2015)
Mode/s of study:	Non-standard period of study as follows: • Full-time for 4 years • No part-time route available
Language of study:	English
Paired with foundation year	No
Study abroad opportunities:	No
Placement year opportunity:	No

Introduction and special features

Biomedical Science provides a multidisciplinary approach to the study of human disease. It encompasses the causes of disease and the effects of disease on the normal structure and functions of the human body. It also provides an understanding of the scientific basis for the laboratory investigation, diagnosis, monitoring and treatment of disease. Graduates gain an understanding of biomedical science research to develop new diagnostic procedures as well as new therapeutic intervention strategies. As a graduate from a degree programme accredited by the Institute of Biomedical Science (IBMS) you will have a broad-based scientific education coupled with relevant and current technical skills necessary for laboratory work.

All students will register for the Biomedical Science degree programme and will have the opportunity to transfer to the award title of Biomedical Science (with placement) during Level 5 of study. You will be eligible to apply for year-long NHS or industry placements during Level 5 of the Biomedical Science programme. Applicants will be offered placements after detailed consideration of each individual application, academic performance in Level 4 and 5, selection process by the Placement Tutor involving

practitioners / industrial colleagues plus an interview with their chosen placement provider. If successful, you will then transfer to the “Biomedical Science (with placement)” degree programme at the end of Level 5.

You will undertake such a placement from September to September, following level 5. There is no bursary available to support students during this year, but you can access your student loan during this year to cover commuting costs to the placement provider. Whilst undertaking the placement, you will be enrolled on a Placement module at York St John University, to allow you access to the library and VLE during this year.

The placement process is outlined on the next page:

Level 4

All students register on Biomedical Science BSc programme

Students are given information in BIO4001M on placements (short and 1 year)

Students fill in a questionnaire on placements end Sem 1 (short and 1 year)

Students fill in a second questionnaire on placements Sem 2

Level 5

Placement information session – early Sem 1

Students express an interest in 1 year NHS placements middle Sem 1

Students shortlisted for NHS placement interview at YSJ late Sem 1

Selected students matched to subject / geographical placements end Sem 1

Industry interviews for placement and placement information sessions at YSJ Sem 2

Pre-placement preparation sessions, DBS vaccinations and portfolio purchase. Notify Registry and student loans.

Sept-Sept 1 year placement in IBMS accredited NHS or company laboratory. 2 visits from Placement Tutor.
NHS only – complete IBMS portfolio and successful verification.
Notify Registry of successful placement completion and go through August SAP

Level 6

September return to University. Complete Level 6 semester 1 and 2 successfully.
NHS only - notify HCPC, graduate with Biomedical Science (with placement) degree and register with HCPC as Biomedical Scientist

Prior to placement the university will ensure that each student has an enhanced Disclosure and Barring Service (DBS check), if required. The student will also have started a programme of vaccination against hepatitis B for NHS placements.

The University will meet the cost of the enhanced DBS check (currently £44) and the purchase of the IBMS portfolio (currently £125) for each student who is selected to go out on an NHS placement. The University will also facilitate the HepB vaccinations.

At the end of the NHS placement, the IBMS will organise for the verification of the portfolio to take place, prior to students returning to university to complete their final year of study. The IBMS certificate of competence will be awarded at the end of the final year of study. Following successful completion of the IBMS portfolio and the Level 6 modules, the Placement Tutor will notify Registry of the names of the students to be awarded the Biomedical Science (with placement) award. The IBMS will notify the Health and Care Professions Council (HCPC) of the names of students that have successfully completed their verification of the portfolio to be admitted to the register as Biomedical Scientists. This will allow you to practice as a Biomedical Science Practitioner in NHS laboratories.

For industrial placements, the Placement Tutor will also notify Registry of the names of the students that successfully complete their year placement and Level 6 modules to be awarded the Biomedical Science (with placement) degree title.

Following completion of your degree, you could find employment as a laboratory-based or non-laboratory based scientist in the Pharmaceutical, Biotechnology or other related industries, academic research and teaching. In addition, whilst the degree provides a qualification necessary to start your professional career you will need to continue to develop skills throughout your working life. This programme couples a scientific education with the development of the skills necessary for lifelong learning.

Special features

The award title of ‘Biomedical Science (with placement)’ will indicate to employers that you have undertaken a year-long laboratory placement in either the NHS or in an industry / private laboratory. This extensive laboratory experience is anticipated to increase employability after graduation for all students. In addition, the year-long NHS laboratory placement will enable you to apply for registration with the Health and Care Professions Council (HCPC) as a Biomedical Scientist in conjunction with your IBMS accredited Biomedical Science degree. Registration can be applied for after successful completion of the degree and successful verification of the IBMS portfolio. The portfolio provides evidence of achievement of the HCPC Standards of Proficiency for a Biomedical Scientist and leads to the award of a Certificate of Competence from the IBMS.

Before your placement, you will have some tutorial sessions with the Placement Tutor about expectations of you, the placement provider and University during the placement. You will be supported during your placement by a placement based trainer and the University Placement Tutor. You will also sign a learning and behaviour agreement with both the University and placement provider before commencing the placement.

For our programme, bespoke laboratory facilities have been developed to support extensive laboratory experience in small student groups. Your laboratory competency will be developed from many practical classes plus extensive supported open learning activities. You will also have technology enhanced learning activities both within modules and also as part of extra-curricular self-development, which you will record on an electronic portfolio that can be presented to future employers. In addition, embedded professional development and reflective practice, an individual level 6 research project (and written report) and relevant work-related laboratory experience will enhance your employability. You will develop thorough and detailed knowledge and understanding of the biology of disease at the tissue, cellular and molecular level. You will have collaborative learning experiences at each level of study from academic tutorials, workshops and case studies. In all levels of study, you will have interaction with Biomedical Science practitioners and other professionals from a range of careers and “live briefs” in the Research Methods and Professional Skills

module to develop employability skills. The Biomedical Science degree has also been designed to develop you within the following three themes: Academic development and critical thinking (through learner autonomy, critical thinking, information literacy, research and enquiry); Employability and professionalism (through self-awareness and management, communication, collaboration, life-long learning, professional values, digital literacy); and Inclusivity (through social responsibility, global citizenship and ethics). These themes are developed throughout the programme to prepare you for a variety of careers after graduation.

Admissions criteria

You must meet the University's general entry criteria for undergraduate/ study. In addition, you must have:

- A minimum of BCC from A2 subjects to include grade B or above in Biology. Would also be helpful to see Chemistry and other sciences at A2 Level. For applicants who have already achieved their A2s we would consider CCC if all subjects are sciences.
- DMM or higher from a science based BTEC Extended Diploma with a minimum of three Biology specific modules within the overall diploma. Where this is not evidenced an additional A2/AS in Biology may be required.

If your first language is not English, you need to take an IELTS test or an equivalent qualification accepted by the University (see https://www.yorksj.ac.uk/international/how-to-apply/english-language-requirements/).

If you do not have traditional qualifications, you may be eligible for entry on the basis of Recognition of prior learning (RPL). We also consider applications for entry with advanced standing.

Programme aim(s)

The programme is intended to:

- Provide a stimulating and well-informed programme of study in Biomedical Science for students from diverse cultural and educational backgrounds, with embedded small group activities and vocational skills
- Enhance learning by providing you with supported open learning and technology enhanced learning opportunities to suit your interests and/or career aspirations
- Develop subject knowledge and understanding in the core areas of Biomedical Science as defined in the curriculum to reflect the Subject Benchmark Statement; including an ethical awareness of the implications of ethnicity, gender as well as social and cultural diversity in health and disease
- Develop core discipline specific and research skills as outlined in the curriculum to reflect the Subject Benchmark Statement
- Develop personal transferable skills which enhance your employability and / or aptitude for further education
- Provide an IBMS accredited degree that enables you to apply to the Health and Care Professions Council (HCPC) to register as a Biomedical Scientist, following successful completion of laboratory experience and the IBMS Registration Training Portfolio *
- Provide a supportive and structured environment in which you are encouraged to develop the independent study skills required for lifelong learning

* *This portfolio will be undertaken during a voluntary placement in an IBMS accredited laboratory between Level 5 and 6 as part of the Biomedical Science (with placement) degree programme. Students who wish to complete such a placement will be supported before and during the placement.*

Programme learning outcomes

Upon successful completion of the programme students will be able to:

Level 4

4.1 Describe the underlying concepts and principles of core aspects of Biomedical Science including Cell Biology, Genetics, Biochemistry, Molecular Biology, Human Anatomy and Physiology, Immunology, Microbiology

4.2 Present, evaluate and interpret qualitative and quantitative data, in order to develop research skills, lines of argument and make sound judgements in accordance with basic theories and concepts of biomedical science

4.3 Write scientific reports and communicate the results of their study/work accurately and reliably, and with structured and coherent arguments

4.4 Demonstrate a range of personal transferable skills including communication, information technology (including the use of databases, statistics and other sources of information and means of communication), team working, negotiating and decision-making skills that are required in a working environment and prepare you for lifelong learning

4.5 Demonstrate transferable skills necessary for employment, including personal responsibility; awareness of ethics; health and safety assessments; good laboratory practice and problem solving, quality control and assurance

Level 5

5.1 Describe the well-established principles of Biomedical Science and critically analyse how those principles have developed

5.2 Evaluate and discuss the laboratory specialisms of cellular pathology, clinical biochemistry, clinical immunology, clinical genetics and microbiology, plus haematology and transfusion science

5.3 Select, evaluate and appraise research, experimental and clinical laboratory techniques and be able to apply them to theoretical, experimental and laboratory investigations

5.4 Communicate information in a variety of formats to specialist and non-specialist audiences, and interpret and critically review scientific literature

5.5 Prepare, process, analyse (including numerical and statistical analysis) and interpret experimental/clinical laboratory data and present data in an appropriate format; through interpretation and critical review of scientific research literature

Placement Year

P.1 Demonstrate competency in the standards of proficiency of the Health and Care Professions Council (HCPC), by successful completion of the IBMS Registration Training Portfolio (NHS placements only).

OR

P.2 Demonstrate the professional behaviour and competencies required in a commercial laboratory setting, evidenced by the successful completion of an individual presentation and a mandatory training log.

Level 6

6.1 Source and interpret scholarly research, in order to critically evaluate key aspects of Biomedical Science

6.2 Generate and critically analyse complex data. Synthesise complex ideas and develop advanced techniques at the forefront of Biomedical Science, using current research in the discipline, as demonstrated by the research project

6.3 Organise and plan academic and laboratory work; evaluate ethical considerations; make use of scholarly reviews and primary sources and undertake autonomous learning

Programme structure

The curriculum is designed to enable you to develop the necessary level of knowledge of Biomedical Science suitable for a career as a Biomedical Scientist or as a scientist in one of the many other professions that you can choose to follow. In Level 4, you will study normal human biology plus some microbiology and immunology at the level of the molecule, gene, cell, organ and organism. Laboratory sessions, run in conjunction with the theoretical components, will give you the opportunity to enhance your understanding of particular topics. You will be introduced to basic laboratory skills, alongside qualitative and quantitative data handling / interpretation. You will also develop your key skills during Level 4 and you will start to develop a progress file. You will be encouraged to develop a reflective attitude to your learning and develop numerical, written and oral communication, IT and group working skills.

In Level 5, the curriculum continues to concentrate on core areas of Biomedical Science, in particular, the laboratory disciplines. You will start to examine the processes that disrupt normal human biological function and so cause disease. You will also explore the methods used to diagnose and treat disease. You will also develop personal transferable skills and reflect on how these will prepare you for the working environment. You will be encouraged to self-evaluate your skills and identify and address areas for improvement. In Level 5 you will increase your depth of knowledge and laboratory and data handling skills and will develop autonomy in your learning by producing individual and group work and take increasing responsibility for achieving the learning outcomes of your modules and level of study. Case studies and workshop material in Level 5 provides an opportunity for interaction with each other, discussion, debate and assimilation of ideas.

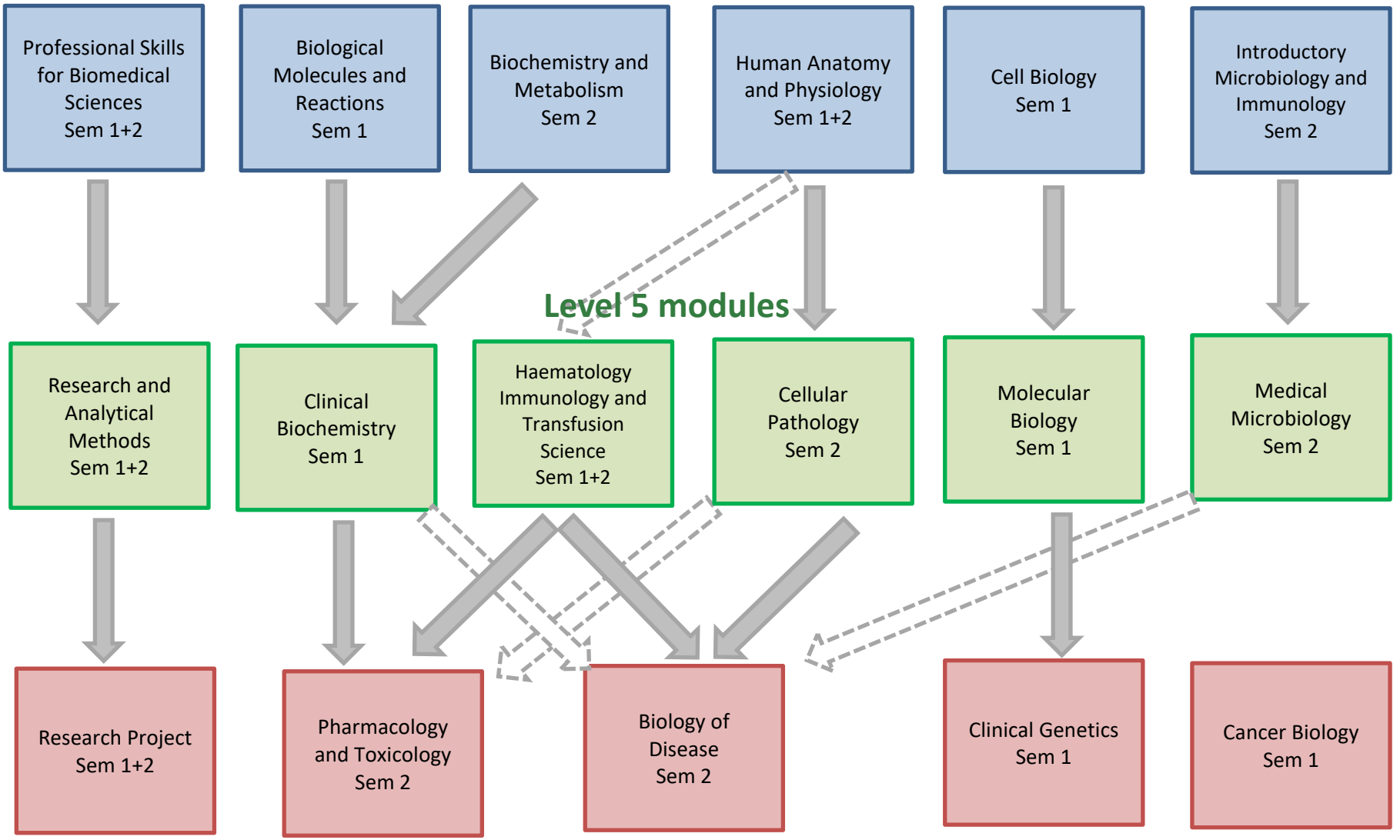
You will undertake a voluntary placement year here to complete a year-long placement in order to graduate with a Biomedical Science (with placement) award.

In Level 6 the curriculum continues to allow you to develop your knowledge and understanding of human disease and you will study in depth a range of current research informed topics in Biomedical Science. You will gain an appreciation of: the pathogenic mechanisms (endogenous and exogenous) associated with the development, progression, manifestation and complications of disease in human beings; a range of diseases which affect particular organs/tissues and the accompanying changes in biochemistry, morphology and physiology, both locally and systemically; the laboratory diagnosis and management of a range of human diseases.

Ethics / COSHH, health and safety training and Good Laboratory Practice are addressed throughout the programme in the BIO4001M *Personal and Professional Development*, BIO5001M *Research and Analytical Methods* and BIO6001M *Research Project* modules. A *viva voce* in BIO5001M *Research and Analytical Methods* and BIO6005M *Pharmacology and Toxicology* modules prepare you for analogous situations after graduation, in either further study or in job interviews. You will also be given ‘live briefs’ to work on and then discuss with visiting practitioners and lecturers to gain insight into real life issues and work-based learning in a variety of employment settings and develop your own professional standards.

You will also continue to reflect upon ways to improve your own learning and performance and to develop autonomous learning skills. Laboratory sessions along with the research project will allow you to improve your data handling and critical interpretation skills and increase the autonomy with which you can apply them. You will be expected to take increasing responsibility for your own learning, organisation and planning of academic and laboratory work, as well as group and individual outcomes. Throughout the curriculum you will have the opportunity to develop the skills associated with biomedical laboratory practice, professional standards and the importance of quality control and quality assurance.

Biological Sciences Level 4 modules



Level 6 modules

Modules for the programme

Code	Level	Semester	Title	Credits	Status of Module for BSc (Hons) Biomedical Science	Status of Module for BSc (Hons) Biomedical Science (with placement)*	Both programmes
					compulsory or optional to take **C or O**		non-compensatable or compensatable **NC or X**
BIO4001M	4	1&2	Personal and Professional Development	20	C	C	NC
BIO4002M	4	1&2	Human Anatomy and Physiology	20	C	C	NC
BIO4003M	4	1	Biological Molecules and Reactions	20	C	C	NC
BIO4004M	4	1	Cell Biology	20	C	C	NC
BIO4005M	4	2	Biochemistry and Metabolism	20	C	C	NC
BIO4006M	4	2	Introductory Microbiology and Immunology	20	C	C	NC
BIO5001M	5	1&2	Research and Analytical Methods	20	C	C	NC
BIO5002M	5	1&2	Haematology, Immunology and Transfusion Science	20	C	C	NC
BIO5003M	5	1	Clinical Biochemistry	20	C	C	NC
BIO5004M	5	1	Molecular Biology	20	C	C	NC
BIO5005M	5	2	Medical Microbiology	20	C	C	NC
BIO5006M	5	2	Cellular Pathology	20	C	C	NC
BIO5007P		Year	Placement Module	0	-	C	NC
BIO6001M	6	1&2	Research Project	40	C	C	NC
BIO6002M	6	1	Cancer Biology	20	C	C	NC
BIO6003M	6	1	Clinical Genetics	20	C	C	NC
BIO6004M	6	2	Biology of Disease	20	C	C	NC
BIO6005M	6	2	Pharmacology and Toxicology	20	C	C	NC

* Only students who successfully complete a one year placement will be awarded the Biomedical Science (with placement) degree title.

Code	Level	Semester	Title	Credits	Status of Module for BSc (Hons) Biological Science	
					compulsory or optional to take **C or O**	non-compensatable or compensatable **NC or X**
BIO4001M	4	1&2	Personal and Professional Development	20	C	X
BIO4002M	4	1&2	Human Anatomy and Physiology	20	C	X
BIO4003M	4	1	Biological Molecules and Reactions	20	C	X
BIO4004M	4	1	Cell Biology	20	C	X
BIO4005M	4	2	Biochemistry and Metabolism	20	C	X
BIO4006M	4	2	Introductory Microbiology and Immunology	20	C	X
BIO5001M	5	1&2	Research and Analytical Methods	20	C	X
BIO5026M	5	1&2	Haematology, Immunology and Transfusion Science	20	C	X
BIO5027M	5	1	Clinical Biochemistry	20	C	X
BIO5004M	5	1	Molecular Biology	20	C	X
BIO5028M	5	2	Medical Microbiology	20	C	X
BIO5029M	5	2	Cellular Pathology	20	C	X
BIO6001M	6	1&2	Research Project	40	C	NC
BIO6002M	6	1	Cancer Biology	20	C	X
BIO6019M	6	1	Clinical Genetics	20	C	X
BIO6004M	6	2	Biology of Disease	20	C	X
BIO6005M	6	2	Pharmacology and Toxicology	20	C	X

Learning, teaching and assessment

The teaching, learning and assessment strategy takes into consideration the learning outcomes for the programme, progression through levels of study, the nature of topic studied and the need for you to demonstrate greater autonomy in your learning as you progress through the programme. We believe that our broad portfolio of assessments is a driver for learning, ensures learning outcomes are met, rewards success and provides excellent student feedback.

In each of the modules you will be exposed to a range of learning, teaching and assessment approaches to actively engage you in the ways of thinking and practicing in the discipline of Biomedical Science. Typically within modules, you will be guided through several themes over the course of a semester or year. For example, module BIO4003M *Biological Molecules and Reactions* will consider molecular structure, functional groups and reaction mechanisms over the semester. Your learning in relation to these themes will be facilitated by: lecture / workshop sessions that provide an overview of the theory in the area; give you the opportunity to discuss theory and application to practice and test out your understanding with peers and the tutor and practical sessions to teach you relevant skills and carry out experiments. These core sessions will be supplemented by formative activities in the laboratory to complete related practical tasks, the Virtual Learning Environment where you will complete a self-assessment quiz or piece of reading and revision sessions to discuss your academic development in the topic area.

In level 4 this will be highly structured, with tasks to 'scaffold' learning and help you make the transition into university, however as your studies progress you will be expected to manage your own learning and undertake independent tasks. In particular you will be encouraged to critically engage with research literature and discuss how evidence can be used to support and develop theory and practice.

Assessment on the programme has been designed to ensure that it supports your learning, in addition to monitoring your skills and understanding. This means that formative assessments are integral to all modules and are designed to engage you with meaningful feedback and develop an ability to self-evaluate, prior to submission of the summative work. As you progress through your Biomedical Science degree, the assessments change and become more challenging to reflect the increase in your knowledge and abilities. Hence in level 4 you will encounter a number of short tests to determine knowledge and practical reports to give you the opportunity to gain experience in report writing, data handling and interpretation and scientific writing. In Level 5 and 6 you will demonstrate increasing skills of analysis, synthesis and criticism through a wide variety of assessment strategies, including written and oral examinations, report writing, case studies, group work, essays, scientific writing, presentations and the research project report. In particular, the project report provides a major opportunity to demonstrate autonomy in data handling and critical interpretation in a research context. All these assessments have been carefully scheduled to ensure they are progressive and well-spaced throughout the programme.

Academic engagement is supported via regular feedback from academic tutors and module leaders, in order to facilitate your development and improve your engagement with your studies. You can discuss suggestions for performance improvement with both academics and peers and the Study Development Team. The use of formal and informal feedback throughout the modules will develop your ability to evaluate your progress and build confidence. The programme design allows you to develop many skills that can be applied to new tasks and situations and helps you to engage with the curriculum. Technical skills will be assessed by a range of laboratory competency-based assessments in addition to the practical classes, data analysis and interpretation and technical badges awarded throughout the programme. Transferable skills will be assessed via a range of assessment types including written and oral communication, group working and problem solving. Details of the specific skills assessment throughout the programme can be found in all module descriptors.

Progression and graduation requirements

The University's general regulations for undergraduate awards apply to this programme.

Any modules that must be passed for progression or award are indicated in the Programme Structure section as non-compensatable.

This programme does not permit the option to study part time to redeem progression failure in level 4 and 5 due to a PSRB requirement.

Third attempts are not permitted either through appeal, SCP approval or under the University's regulations due to PSRB requirements.

In addition, the following programme-specific regulations apply in respect of progression and graduation:

- There is no compensation for the Biomedical Science programme, in accordance with the Institute of Biomedical Science accreditation criteria. Students must demonstrate that they have met the learning outcomes for all core aspects of the Pathology disciplines throughout the degree. This means that 120 credits must be passed at 40 or higher in order to progress between years and be eligible for a final award of *BSc (Hons) Biomedical Science*.
- Students **must** successfully complete the year-long placement in order to be awarded the *Biomedical Science (with placement)* degree title at graduation. Any student who fails to complete the placement module will be enrolled back onto the 'Biomedical Science' BSc and will start their final year of study the following September.

- If you have not met the credit requirements for the *BSc (Hons) in Biomedical Science* but have achieved the regulatory credit requirements for the award of an Honours degree, you are eligible for the award of *BSc (Hons) Biological Sciences.* If you have met the credit requirements for an Ordinary degree, you are eligible for the award of a *BSc (Ord) Biological Sciences*. This programme does not permit the option to study part time to redeem progression failure in level 4 and 5 due to a PSRB requirement

Internal and external reference points

This programme specification was formulated with reference to:

- University Mission Statement
- QAA benchmark statement 2015
- http://www.qaa.ac.uk/en/Publications/Documents/SBS-Biomedical-sciences-15.pdf
- Framework for Higher Education Qualifications (updated Oct 2013) http://www.qaa.ac.uk/publications/information-and-guidance/publication?PubID=182#.VIHEUdKDmm4
- HCPC Standards of proficiency for Biomedical scientists (updated on 1/12/14) http://www.hcpc-uk.org/publications/standards/index.asp?id=40

The aims and outcome statements have been referenced to the University's Learning and Teaching and Assessment Strategy, the QAA Subject Benchmark statement and IBMS accreditation criteria, the Framework for Higher Education Qualifications (2013) and the Health and Care Professions Council (HCPC) Standards of Proficiency (2014)

Further information on the programme of study may be obtained from:

- Admissions entry profile (Admissions)
- Programme validation document (Registry – Academic Quality Support)
- Regulations (Registry – Academic Quality Support)
- Student programme handbook (School)
- Module handbooks (School)

Date written / revised: 16/06/19; Dec 2019
Programme originally approved: 22/05/19