Programme specification

BSc (Hons) Biomedical Science

School:	Health Sciences
Entry in:	2018
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
Exit Awards:	Certificate of Higher Education Biological Sciences Diploma of Higher Education Biological Sciences BSc (Ord) Biological Sciences BSc (Hons) Biological Sciences
UCAS Code / GTTR / Other:	7Y63
Joint Honours Combinations:	Not applicable
QAA Benchmark Group(s):	Biomedical Science (2015)
Mode/s of Study:	Full-time, normally for 3 years Part-time, normally for 5 years
Language of Study:	English

Introduction and Special Features

Introduction

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. This broad-based education provides the foundation for a wide-range of scientific careers, including as a Biomedical Scientist in a hospital environment (following successful completion of the IBMS Registration Training Portfolio for the Certificate of Competence). The IBMS Registration Training Portfolio must be completed in an IBMS accredited laboratory (during a placement taken between Year 2 and 3 – see the Programme Specification for Biomedical Science (with placement)) or following graduation from this programme. Successful completion of the IBMS Registration Training Portfolio allows you to register with the Health and Care Professions Council as a Biomedical Scientist. You may also wish to pursue a different laboratory-based or non-laboratory based scientist in the Pharmaceutical or Biotechnology Industry and other related industries, academic research or teaching. Your degree provides a qualification necessary to start your professional career however, 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 Biomedical Science programme is externally accredited by the professional body, the Institute of Biomedical Science (IBMS). This enables you to apply to the Health and Care Professions Council (HCPC) to register as a Biomedical Scientist following graduation with the honours degree and following successful completion of laboratory experience and the IBMS Registration Training Portfolio. Non IBMS-accredited degree courses do not facilitate this career, as all trainee Biomedical Scientists must have completed the bespoke curriculum required by the IBMS in order to practice. Other non-accredited Biomedical Science programmes may have similar content, but their graduates will require "top-up" modules in addition to completion of the IBMS Registration Training Portfolio in order to undertake a career as a registered Biomedical Scientist.

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 final year 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 years 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 (though 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

In addition to the University's general entry criteria for undergraduate study, 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 or AS 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.

The English Language entry requirements for the University are described at the following web site:
https://www.yorksj.ac.uk/international/how-to-apply/english-language-requirements.aspx

If you do not have traditional qualifications, you may be eligible for entry on the basis of Accredited Prior (Experiential) Learning (APL/APEL). We also consider applications for entry with advanced standing.

Programme Aims

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 students 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 skills as outlined in the curriculum to reflect the Subject Benchmark Statement;
- Develop research skills to reflect the Subject Benchmark Statement and prepare you for postgraduate study;
- 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 can be undertaken during a voluntary placement in an IBMS accredited laboratory between Year 2 and 3, however this is not part of the normal 3 year degree programme. Students who wish to complete such a placement will be required to transfer to the Biomedical Science (with placement) programme after Year 2, if they meet the selection criteria. The Biomedical Science (with placement) programme is available as a full time programme only and can also include an industrial placement year (this does not allow completion of the IBMS portfolio).*

Programme Learning Outcomes

FHEQ Level 4 (Year 1)
If you complete level 4 successfully, you are eligible for a Certificate of Higher Education; The Certificate of Higher Education indicates that you have successfully met learning outcomes 1 to 5 consistent with those of the Framework for Higher Education Qualifications. By the end of level 4, you will be able to:

LO1 - Describe the underlying concepts and principles of core aspects of Biomedical Science including Cell Biology, Genetics, Biochemistry, Molecular Biology, Physiology, Pathology, Immunology, Microbiology;

LO2 - Present, evaluate and interpret qualitative and quantitative data, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of their subject(s) of study

LO3 - Write scientific reports and communicate the results of their study/work accurately and reliably, and with structured and coherent arguments

LO4 - Use the range of personal transferable skills including communication, information technology (including the use of the internet and other electronic devices as 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;

LO5 - Develop 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.

FHEQ Level 5 (Year 2)

If you complete level 5 successfully, you are eligible for a Diploma of Higher Education. The Diploma of Higher Education indicates that you have successfully met learning outcomes 1 to 10 consistent with those of the Framework for Higher Education Qualifications. By the end of level 5, you will be able to:

LO6 Demonstrate knowledge and critical understanding of the well-established principles of Biomedical Science, and of the way in which those principles have developed

LO7 Evaluate and discuss the laboratory specialities of cellular pathology, clinical biochemistry, clinical immunology and microbiology, plus haematology and transfusion science.

LO8 Select, evaluate and appraise experimental and clinical laboratory techniques and be able to apply them to experimental and laboratory investigations;

LO9 Communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and interpret and critically review scientific literature

LO10 Prepare, process, analyse (including numerical and statistical analysis) and interpret experimental/clinical laboratory data and present data in an appropriate format; Applying skills in critical and analytical thinking and problem solving skills

FHEQ Level 6 (Year 3)

If you have achieved the required 360 credits at Levels 4 to 6 and have achieved learning outcomes 1-13 you are eligible for the award of BSc (Hons) Biomedical Science.

LO11 - Critically evaluate the key aspects of Biomedical Science, including acquisition of coherent and detailed knowledge, informed by current research-led aspects of a discipline

LO12 - Generate and 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.

LO13 - Manage your own learning, including organisation and planning of academic and laboratory work; ethical considerations; make use of scholarly reviews and primary sources and undertake autonomous learning.

Programme Structure

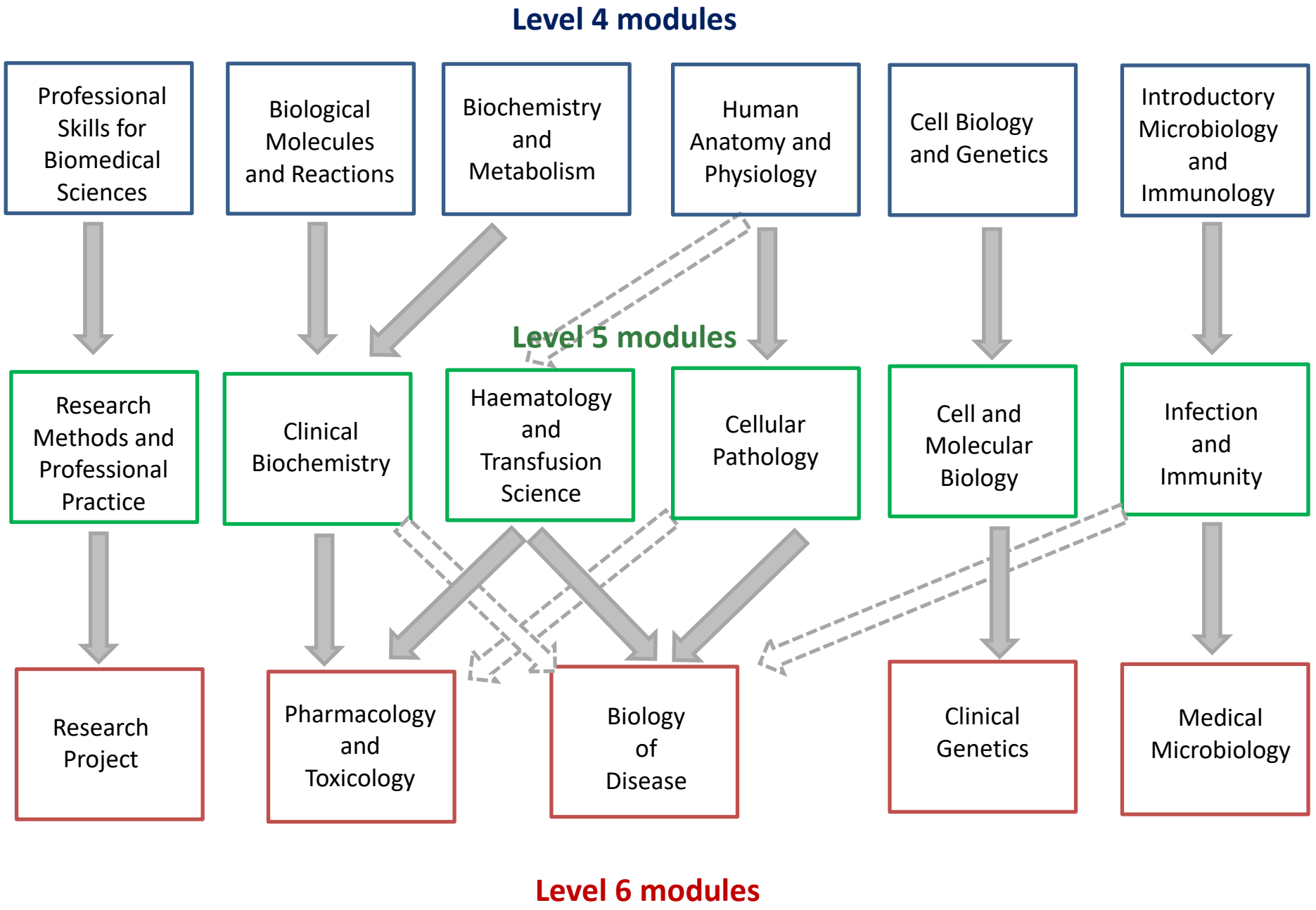
The curriculum is designed to enable you to develop the necessary level of knowledge of Biomedical Science suitable for a career as a Biomedical Scientist or as a scientist in one of the many other professions that you can choose to follow. In Year 1, you will study normal human biology plus some microbiology 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 Year 1 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 Year 2, 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. Again, laboratory sessions will give you the opportunity to enhance understanding of some topics and you will expand your laboratory skills, data handling and interpretation. 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 Year 2 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 Year 2 provides an opportunity for interaction with each other, discussion, debate and assimilation of ideas.

In Year 3 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 1BIO01 Professional Skills for Biomedical Sciences, 2BIO01 Research Methods and Professional Practice and 3BIO01 Research Project modules. A *viva voce* in 2BIO01 Research Methods and Professional Practice and 3BIO05 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.


Level 4 modules
Professional Skills for Biomedical Sciences
Biological Molecules and Reactions
Biochemistry and Metabolism
Human Anatomy and Physiology
Cell Biology and Genetics
Introductory Microbiology and Immunology
Level 5 modules
Research Methods and Professional Practice
Clinical Biochemistry
Haematology and Transfusion Science
Cellular Pathology
Cell and Molecular Biology
Infection and Immunity
Research Project
Pharmacology and Toxicology
Biology of Disease
Clinical Genetics
Medical Microbiology
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) Biological Science
1BI001	4	1+2	Professional Skills for Biomedical Sciences	20	CA	C
1BI002	4	1+2	Human Anatomy and Physiology	20	CA	C
1BI003	4	1	Biological Molecules and Reactions	20	CA	C
1BI004	4	1	Cell Biology and Genetics	20	CA	C
1BI005	4	2	Biochemistry and Metabolism	20	CA	C
1BI006	4	2	Introductory Microbiology and Immunology	20	CA	C
2BI001	5	1+2	Research and Analytical Methods	20	CA	C
2BI002	5	1+2	Infection and Immunity	20	CA	C
2BI003	5	1	Clinical Biochemistry	20	CA	C
2BI004	5	1	Cell and Molecular Biology	20	CA	C
2BI005	5	2	Haematology and Transfusion Science	20	CA	C
2BI006	5	2	Cellular Pathology	20	CA	C
3BI001	6	1+2	Research Project	40	CA	C
3BI002	6	1	Medical Microbiology	20	CA	C
3BI003	6	1	Clinical Genetics	20	CA	C
3BI004	6	2	Biology of Disease	20	CA	C
3BI005	6	2	Pharmacology and Toxicology	20	CA	C

*__C__: Compulsory, __CP__: Compulsory for progression to the next level, __CA__: Compulsory for award, __O__: option or __E__: elective.

A part time route, where you can study these modules over 5 years is available. Please contact the Subject Director for more information

Teaching, Learning and Assessment

The teaching, learning and assessment strategy takes into consideration the learning outcomes for the programme, progression through Years 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 1BIO03 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 the first year 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 the first year 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 Years 2 and 3 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 assessment 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. 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.

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.

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.

If you have not met the credit requirements for the BSc (Hons) in Biomedical Science but have met the University's standard progression requirements of having passed 100 credits but failed 20 credits (between 20%-40%) you will be eligible for transfer at the end of Level 4 or Level 5 to the Biological Science award and will therefore be eligible for the award of BSc (Hons) Biological Sciences. If, at Level 6, 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.

The exit awards from this programme are:

- Certificate of Higher Education Biological Sciences
- Diploma of Higher Education Biological Sciences
- BSc (Ord) Biological Sciences

Internal and External Reference Points

This programme specification was formulated with reference to:

- University Mission Statement
- Learning, Teaching and Assessment Strategy
- 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

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 of Health Sciences)
- Module handbooks (School of Health Sciences)

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