

Programme specification

BSc (Hons) Biological Sciences

<i>School:</i>	Health Sciences
<i>Entry from:</i>	2018
<i>Awarding Institution:</i>	York St John University
<i>Teaching Institution:</i>	York St John University
<i>Delivery Location:</i>	York St John University
<i>Programme/s Accredited by:</i>	N/A
<i>Exit Awards:</i>	Certificate of Higher Education in Biological Sciences Diploma of Higher Education in Biological Sciences BSc (Ord) Degree in Biological Sciences
<i>UCAS Code / GTTR / Other:</i>	
<i>Joint Honours Combinations:</i>	Not applicable
<i>QAA Benchmark Group(s):</i>	Biosciences (2015) and the Level 6 degree apprenticeship in Laboratory Science (Life Sciences) standard
<i>Mode/s of Study:</i>	Part-time, normally for 4 years
<i>Language of Study:</i>	English

Introduction and Special Features

Introduction

The degree apprenticeship in Biological Sciences provides a multidisciplinary approach to the study of human biology. 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 biological research to develop new diagnostic procedures as well as future scientific strategies, in the context of their own laboratory discipline.

As a graduate from this degree apprenticeship in Biological Sciences, 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 laboratory-based or non-laboratory based scientist in the Pharmaceutical or Biotechnology Industry and other related industries or academic research. Your degree apprenticeship provides a qualification to enhance 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 degree apprenticeship in Biological Sciences programme has been mapped to both the QAA benchmark statement for Biosciences and the Level 6 degree apprenticeship in Laboratory Science (Life Sciences) standard. This ensures the quality and appropriate content of the programme of study. You will study the modules for the programme whilst enrolled as an apprentice at York St John University in a part time pattern, based on 20% “off the job” model, to be agreed with your company laboratory and work based supervisor / manager.

For this 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 supported open learning activities and extensive laboratory experience in the workplace. You will also have online learning activities both within modules and also as part of extra-curricular self-development, which you will record in 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 plus completion of your vocational competence evaluation log 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 several modules. The degree apprenticeship in Biological Sciences 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 and will be further enhanced by the work-based learning and log book completion that you will also undertake during your studies. You will complete two gateway assessments as part of your degree apprenticeship, facilitated in the workplace laboratory. Once you have completed all modules (360 credits), you will also undertake a work based end point assessment (EPA) which will take place during the last 3 months of the apprenticeship and will comprise of a review of behaviours evaluation log; a presentation of a workplace synoptic project; a vocational competence discussion and a scenario case study.

Admissions Criteria

In addition to the University’s general entry criteria for [undergraduate](#) study, you must have:

Typically, candidates will have 5 GCSE’s at grade C or above, including English, maths and a science subject and hold relevant level 3 qualifications providing the appropriate number of UCAS points for entry to a level 6 Higher Education programme.

Other relevant or prior experience may also be considered as an alternative.

The English Language entry requirements for the University are described at the following web site:

<https://www.yorks.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 Biological Sciences 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 Biological Sciences as defined in the curriculum to reflect the Subject Benchmark Statement for Biosciences;
- 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 further study and employment;
- Develop personal transferable skills which enhance your employability and / or aptitude for further education;
- Provide an apprenticeship route that enables you to gain a degree level qualification, following successful completion of all modules, gateway assessments and end point assessment. *
- Provide a supportive and structured environment in which you are encouraged to develop the independent study skills required for lifelong learning.

** The gateway assessments are coordinated between the University and the workplace during the apprenticeship. The end point assessment with an external assessor will take place normally within 3 months of your completion of the programme modules.*

Programme Learning Outcomes

FHEQ Level 4

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 Biological Sciences 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

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

If you have achieved the required 360 credits at Levels 4 to 6 and have achieved learning outcomes 1-13 and pass the end point assessment, you are eligible for the award of BSc (Hons) Degree Apprenticeship in Biological Sciences.

- LO11 - Critically evaluate the key aspects of Biological Sciences, 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 Biological Sciences, 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

You will study the modules over a four year period and will split some Level 4 and Level 5 modules over the first 2 years of study. Your second and third year of study will involve the Level 5 and 6 modules.

The curriculum is designed to enable you to develop the necessary level of knowledge of Biological Sciences suitable for a career as a scientist. 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.

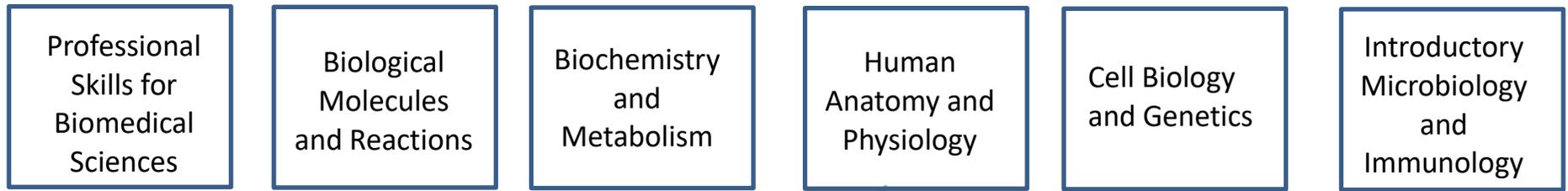
In Level 5, the curriculum will examine the processes that disrupt normal human biological function and so cause disease. You will also explore the methods used to diagnose and treat disease. Again, laboratory sessions will give you the opportunity to enhance understanding of some topics and you will 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 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.

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 Biological Sciences. 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.

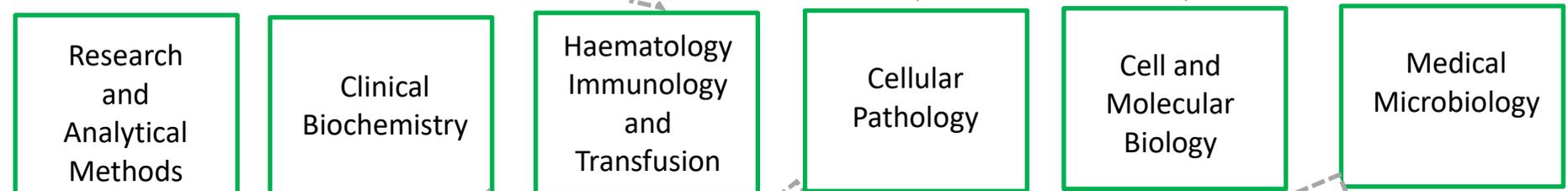
Ethics / COSHH, health and safety training and Good Laboratory Practice are addressed throughout the programme in the 1BIO01 Professional Skills for Biomedical Sciences, 2BIO01 Research and Analytical Methods and 3BIO01 Research Project modules and through the work placed log book. A *viva voce* in 2BIO01 Research Methods and Professional Practice and 3BIO05 Pharmacology and Toxicology modules prepare you for analogous situations, including the end point assessment. 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



Level 5 modules



Level 6 modules



Modules for the Programme

(Red modules are to be taught via distance learning and tutorials on campus days and blue modules will be taught via distance learning / tutorials and at the workplace outside the normal 24 week semesters).

Note: This route has been suggested for apprentices who work in a histopathology laboratory, it could be modified such that the specialist module most closely related to their work role is delivered via block teaching / in the workplace / via distance learning and tutorials (eg for molecular biology or biochemistry). Each module is currently timetabled on one day of the week and the days indicated are the current day for each module.

Year 1 – 100 credits in 2018/19

Module Code	Module Title	Credits	Level	Semester	Day
1BI001	Professional Skills for Biomedical Sciences (to include work based learning / log book)	20	4	1+2	Sem 1 +2 Thurs
1BI003	Biological Molecules and Reactions	20	4	1	Thurs
1BI006	Introductory Microbiology and Immunology	20	4	2	Thurs
1BI004	Cellular Biology and Genetics	20	4	April / May	Flipped learning
1BI005	Biochemistry and Metabolism	20	4	May/ June – exam Aug	Flipped learning

NOTE - New modules to be validated and IBMS accredited in 2019 – so the names and sequence of some modules in level 5 and 6 may vary slightly

Year 2 – 100 credits in 2019/20 (new year 1 modules)

Module Code	Module Title	Credits	Level	Semester	Day
1BI101	Human Anatomy and Physiology	20	4	1+2	Day release / distance learning
2BI003	Clinical Biochemistry	20	5	1	Fri
2BI006	Cellular Pathology	20	5	2	Thurs
2BI004	Cell & Molecular Biology	20	5	May / June	Flipped learning
2BI001	Research and Analytical Methods (to include work based learning / log book)	20	5	Summer	Flipped learning

Progression point to Level 5 after 2 years – all Level 4 modules completed.

Gateway assessment one – 18 - 20 months after starting the programme

Year 3 – 60 credits (+ start of 40 credit research project work split over the summer and Year 4) in 2020/21 (new Year 2 modules)

Module Code	Module Title	Credits	Level	Semester	Day
2BI101	Haematology, Immunology and Transfusion Science	20	5	1+2	Fri
2BI104	Medical Microbiology	20	5	2	Day release / distance learning
3BI005	Pharmacology and Toxicology	20	6	Summer	Flipped learning
	Research Project (to include work based learning / log book)	40	6	Summer before Year 4	N/A

Progression point end of year 3 when Level 5 completed

Start research project preparation / literature reviews in the summer before the final year starts

Year 4 – 100 credits in 2021/22 (new Year 3 modules)

Module Code	Module Title	Credits	Level	Study period	Day
3BI100	Research Project (to include work based learning / log book)	40	6	Sem 1& 2	N/A
3BI101	Cancer Biology	20	6	1	Thurs / Fri
3BI102	Clinical Genetics	20	6	1	Flipped learning
3BI103	Biology of Disease	20	6	2	Thurs / Fri

Complete all modules by June and go through exam board – have until October to complete EPA and graduate in November

The Research project is to be carried out in the workplace. 100 hours to be spent on the laboratory based collection of data to be equivalent to the full time research project at YSJ.

Gateway 2 assessment

End point assessments (EPA) to include:

1. Review of behaviours evaluation log
2. Presentation of a workplace synoptic project
3. A vocational competence discussion
4. Scenario case study

The EPA will cover all elements of the apprenticeship standard and will lead to the graded apprenticeship award and Registered Scientist status.

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 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 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 degree apprenticeship in Biological Sciences, 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 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 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.

If you have not met the credit requirements for the BSc (Hons) in Biological Sciences but have achieved the regulatory credit requirements for the award of an Ordinary degree, you are eligible for the award of a BSc (Ord) in 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](#)
www.qaa.ac.uk/en/publications/documents/SBS-Biosciences-15.PDF
- Framework for Higher Education Qualifications (updated Oct 2013)
<http://www.qaa.ac.uk/publications/information-and-guidance/publication?PubID=182#.VIHEUdKDmm4>
- [The Institute for Apprenticeships Laboratory Scientist Degree standards 2018](#)
<https://www.instituteforapprenticeships.org/apprenticeship-standards/laboratory-scientist-degree/>

The aims and outcome statements have been referenced to the University's Learning and Teaching and Assessment Strategy, the QAA Subject Benchmark statement, the Framework for Higher Education Qualifications (2013) and the [Institute for Apprenticeships Laboratory Scientist Degree standards \(2018\)](#).

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)

Date written / revised: 29/5/18