

**PROGRAMME SPECIFICATION**

for the award of

**BSc (Hons) Biological Sciences (Human Biosciences)**

**Managed by the Faculty of Health and Life Sciences**

**Delivered by Department of Biological and Medical Sciences**

<b>Date approved:</b>	28 <sup>th</sup> September 2018
<b>Applies to students commencing study in:</b>	September 2019

**RECORD OF UPDATES**

<b>Date amended*</b>	<b>Nature of amendment**</b>	<b>Reason for amendment**</b>

## SECTION 1: GENERAL INFORMATION

<b>Awarding body:</b>	Oxford Brookes University
<b>Teaching institution and location:</b>	Oxford Brookes University
<b>Language of study:</b>	English
<b>Final award/s:</b>	BSc (Hons)
<b>Programme title:</b>	Biological Sciences (Human Biosciences)
<b>Interim exit awards and award titles available:</b>	BSc Ordinary Biological Sciences (Human Biosciences) Named DipHE, CertHE
<b>Brookes course code:</b>	IOH / BSCH IOH
<b>UCAS code:</b>	C000 IOH
<b>JACS code:</b>	C000 Biological Sciences
<b>HECoS code:</b>	(100345) Biological Sciences
<b>Mode of delivery:</b> (Mode of Study given in brackets)	Full-time (face to face/on-campus) Part-time (face to face/on-campus) *Sandwich mode (face to face/on campus/placement)  * <b>Year 3</b> can be a professional placement in a laboratory concerned with research, clinical work, or professional training.
<b>Duration of study:</b>	The normal duration of a programme leading to the award of a Bachelor's Degree (BSc) with Honours is 3 years for full-time study, or 4 years for sandwich mode (with a year placement). Part-time is normally 6 years duration.  To obtain a BSc honours degree a student must pass, within eight years, twenty-four module credits including at least eight level 4 module credits and at least sixteen (from a maximum of 22) acceptable module credits, of which at least 6 must be at Level 6.
<b>Subject benchmark statement/s which apply to the programme:</b>	Biosciences 2015
<b>Professional accreditation attached to the programme:</b>	None
<b>Apprenticeship Standard:</b>	NA
<b>University Regulations:</b>	The programme conforms to the University Regulations for the year of entry as published/archived at: <a href="http://www.brookes.ac.uk/regulations/">http://www.brookes.ac.uk/regulations/</a>

## **SECTION 2: WHY STUDY THIS PROGRAMME?**

The Biological Sciences (Human Biosciences) degree provides students with a flexible but structured programme of study that will prepare them for careers in the field of Human Biosciences. The biology of humans is studied at a systematic and whole human organism level and students can combine a core of physiology with choices from different specialisms such as cell biology, neuroscience, nutrition and genomics. This breadth means that students can either take a broad approach, based on the principles and methods of different aspects of biology, or focus on a narrower range of modules with a view to becoming a specialist. The flexible nature of this course allows the creation of a degree that reflects individuals needs and evolves as their interests develop.

The degree aims to generate a sound understanding of the scientific basis of human biology alongside knowledge and understanding to design and critically evaluate experimental procedures. Students will have the opportunity to develop a range of practical skills in such areas as laboratory techniques, data handling, computing, report writing, oral presentations and teamwork.

Oxford Brookes has an international reputation for outstanding research work into areas such as cardiopulmonary, renal and reproductive physiologies, and the Oxford area is an important centre for human and medical research.

Staff profiles for members of the core teaching team for the degree can be found on Department website (<https://www.brookes.ac.uk/bms/about/staff/>).

## **SECTION 3: PROGRAMME LEARNING OUTCOMES**

On successful completion of the programme, graduates will demonstrate the following Brookes Attributes and be able to:

### **3.1 ACADEMIC LITERACY**

- Demonstrate subject specific core knowledge, intellectual rigour and transferable skills
- Communicate effectively using written and oral presentation skills
- Apply the skills, both practical and analytical, developed during specialised, in-depth study in several areas of the course such as the research project to their own independent research
- Explain and evaluate scientific bases underlying the subject using their sound knowledge of Biological Sciences in general and Human Biosciences in particular
- Acquire new knowledge and skills from appropriate sources and utilise them in their continuing professional development
- Integrate core ideas about human biology, from genetic and cellular levels to organ and system physiology to build an understanding of the human body in health and disease;
- Exhibit knowledge of the broader scientific context in which their own subject specialisms are embedded
- Demonstrate an understanding of how the boundaries of knowledge are advanced through research.

### **3.2 RESEARCH LITERACY**

- Evaluate and analyse experimental, genetic or physiological data
- Employ the skills acquired in the programme to appreciate and critically apply the scientific method to experimental design
- Evaluate novel developments within the selected subject areas contributing to their degree
- Communicate their ideas and results, both verbally and in writing, with clarity and in a manner appropriate to a given audience
- Critically research, review, synthesise, summarise and analyse subject-specific information from a variety of sources including published research to construct a coherent the Biological Science subject area (also fits 3.4)

- Select and use competently and safely appropriate laboratory methods and techniques for the study of Biological Sciences
- Observe, gather, evaluate, interpret and integrate ideas and evidence in a variety of contexts within the Human Biosciences to support findings and hypotheses
- Record and report findings using accepted scientific formats (including verbal, textual, numerical and graphical).

### **3.3 CRITICAL SELF-AWARENESS AND PERSONAL LITERACY**

- Demonstrate confidence and flexibility as independent learners to enhance employability and knowledge
- Adopt safe working practices in the laboratory and have a strong awareness of safety in the working environment
- Express ideas using appropriate scientific and subject-specific language
- Integrate and apply the qualities, skills and intellectual rigour, developed during study, to situations which require professionalism, independent thought, personal responsibility, critical self-awareness, decision making in complex and unpredictable circumstances, problem solving skills and the ability to work in a range of roles within a team
- Reflect on outcomes in order to evaluate the performance of oneself and others

### **3.4 DIGITAL AND INFORMATION LITERACY**

- Apply information technology for scientific, communication, data analysis and information retrieval (e.g. from large genomic databases)
- Search the scientific literature, extract information, organise and evaluate it
- Select and apply specialised software for subject specific purposes

### **3.5 ACTIVE CITIZENSHIP**

- Articulate the inherent global perspective of science and the universality of its principles and language
- Appraise global perspectives, developed through topics or even modules, that relate to international issues or contexts such as in nutrition and epidemiology
- Learn and think independently as part of a commitment to lifelong learning
- Appreciate the interdisciplinary nature of science and the validity of different points of view
- Appreciate ethical, social and legal aspects of obtaining and analysing personal data (gene sequences, medical test reading etc.) and associated information, and be able to critically evaluate and debate them (also fits 3.3);
- Understand and adhere to legislation regarding health and safety in the laboratory

## SECTION 4: CURRICULUM CONTENT & STRUCTURE

### 4.1 PROGRAMME STRUCTURE AND REQUIREMENTS:

ecsis Code	Banner code	Module Title	Credits	Level	Status	Coursework: Exam ratio
U14502	BIOL4002	Cell Biology and Genetics	30	4	Compulsory	50:50
U14504	BIOS4001	Human Structure & Function	30	4	Compulsory	50:50
	BIOS4007	Introduction to Biochemistry B	15	4	Optional	50:50
	BIOS4006	Introduction to Biochemistry A	15	4	Optional	100:0
	BIOL4004	The Practising Scientist	30	4	Compulsory	100:0
U14601	NUTR4001	Introduction to Nutrition	15	4	Optional	50:50
U67504	HIST4004	Death, Disease and Doctors: Medicine and Society	15	4	Optional	100:0
U155	BIOL5001	Career Development	15	5	Compulsory	100:0
U15531	BIOL5014	Molecular Biology	15	5	Compulsory	50:50
U14636	BIOS5010	Integrated Physiology	30	5	Compulsory	40:60
U14525	BIOS5003	Biochemistry of Cell Function	30	5	Optional	40:60
	BIOL5002	Interrogating Genomes	15	5	Optional	100:0
U15535	BIOL5017	Data Carpentry	15	5	Optional	100:0
U15532	BIOL5015	Genetics	15	5	Optional	50:50
U15536	BIOL5018	Cell Biology	15	5	Optional	40:60
U14635	NUTR5004	Human Nutrition and Metabolism	15	5	Optional	50:50
U14660	NUTR5008	Applied Human Nutrition	15	5	Optional	100:0
U14565	BIOS5007	Industrial Experience	15	5	Compulsory *	100:0
U14699	BIOS6010	Project	30	6	Compulsory	100:0
	BIOL6010	Professional Skills & Techniques	15	6	Compulsory	100:0
U14591	BIOS6006	Molecular Biology of Cancer	15	6	Optional	50:50
	BIOL6011	Advanced Genetics and Genomics	15	6	Optional	100:0
U14573	BIOS6003	Genomic Medicine	15	6	Optional	50:50
U14570	BIOS6001	Pathophysiology	30	6	Optional	40:60
U14683	BIOS6009	Neuroscience	30	6	Optional	50:50
U14687	NUTR6005	Clinical Nutrition	15	6	Optional	50:50
U14584	BIOL6001	Advanced Topics in Cell Biology and Bio-imaging	15	6	Optional	40:60
	BIOL6013	Work Experience	15	6	Optional	100:0
U14588	BIOL6009	Independent Study in Life Sciences	15	6	Optional	100:0

\*Compulsory for Sandwich mode students only

### 4.2 PROGRESSION AND AWARD REQUIREMENTS

In order to satisfactorily complete a year of full-time study, a student must:

1. either pass at least 6 module credits during the year, or, if on placement, complete specific requirements set for the placement;
2. by the end of the year, normally be in a position to proceed with a programme which, if passed, would satisfy the requirements for an award within the remaining period of normal full-time study for that award.

In order to satisfactorily graduate with a

- BSc Hons Biological Sciences (Human Biosciences) degree, a student must meet the University requirements for number and level of modules completed, to include all necessary requirements for compulsory and optional modules.

- BSc Biological Sciences (Human Biosciences): a student must meet the University requirements for number and level of modules completed from the within the Programme to include at least BIOS6009 Neuroscience or BIOS6001 Pathophysiology.
- Named Dip HE: a student must meet the University requirements for number and level of modules completed, to include all necessary requirements for compulsory and optional modules. For a named Dip HE BIOS5010 Integrated Physiology needs to be included.

Course diagrams are included in the programme handbook.

### **4.3 PROFESSIONAL REQUIREMENTS**

None

## **SECTION 5: TEACHING AND ASSESSMENT**

Teaching focuses on applying theory in practical settings, either in the lab, or out in the field, with a specific focus on developing skills for employment. The latter is reinforced with two dedicated modules (i.e. Career Development and Professional Skills and Techniques). Students have the opportunity to gain a wide range of skills in the field of, but not limited to, human biosciences. Such skills include physiology, molecular techniques, bioinformatics and advanced light and electron microscopy. Throughout, there is a focus on the application of fundamental biology to real life issues.

The activities of our research groups underpin our teaching and support the development of student's research literacy. These include our world leading Cell Biology, Evolutionary Developmental Biology, Human Genetics and Genomics and Physiology and Endocrinology research groups.

Continued and regular discussions between programme staff members ensures that the programme is characterised by an appropriate breadth and depth of content that is informed by relevant benchmark statements and the latest research (developing Academic and Research literacy). Apart from dedicated and for the degree compulsory modules (i.e. Career Development and Professional Skills and techniques), we also ensure across the programme that students gain transferable skills important for employment such as confidence and flexibility as independent learners, the ability to work productively with others, taking leadership and supportive roles and the ability to communicate ideas and findings, both verbally and in writing, with clarity and in a manner appropriate to diverse audiences (developing Critical self-awareness and personal literacy, Active Citizenship and Digital and information literacy).

This is developed through a variety of teaching, learning and assessment methods that are informed by contemporary practice in science teaching in higher education. All modules make use of the Brookes Virtual Learning Environment (Moodle), typically for locating module resources, for quizzes and coursework submissions and feedback. Assessment methods include essays, reviews, laboratory/field notebooks, scientific reports, posters, professional reports, grant applications and oral presentations. All these activities develop Digital and Information literacy. Reflective learning is encouraged through use of self, peer and staff formative feedback on assignments, group work and project work, and reflective diaries (developing Critical self-awareness and personal literacy).

Assessment is designed to 'shape and develop' learning and not simply measure it (the notion of assessment for learning as well as assessment of learning). The role of formative feedback (i.e., feedback comments which may or may not be associated with a mark/grade) is central to facilitating student learning through assessment. Modules include formative feedback on assignments that includes generic/skills elements (encouraging and facilitating 'feed-forward' and transferability to other possibly different tasks). Modules include at least one assignment where students need to engage with feedback provided on earlier work. Assessment seeks to measure students' progress towards and ultimately their acquisition of programme outcomes and for this reason assessment decisions are co-ordinated at programme level, while seeking to ensure that assessment methods are well integrated in each module (the notion of constructive alignment – the interdependence of learning outcomes, learning methods (teaching) and assessment), developmental and balanced. Students' understanding of the assessment process (assessment literacy) is promoted through their involvement in assessment (self and peer assessment). We are committed to providing clear assessment criteria, and useful and timely feedback on all student work. The quality of academic provision for students is assessed regularly by programme

teams, principally through annual student evaluation of each module, and through critical evaluation of the annual external examiner reports.

Knowledge and understanding in many areas of the Biological Sciences, and Human Biosciences in particular, are rapidly advancing. Teaching staff not only include the latest published advances, but also integrate their own latest relevant research findings in their lectures. Articles from primary research journals feature in reading lists, particularly at level 6, and students are encouraged to use primary research journals in preparing assignments. They also have the opportunity to attend weekly research-focused seminars delivered by members of staff or invited speakers. All these activities develop Academic and Research literacy.

The standards that are expected in research are also widely taught and practised. Skills in scientific writing and presentation and numeracy skills are taught in the first year. In the second year there are optional modules such as Data Carpentry and Interrogating Genomes, which includes bioinformatics and analysing large datasets in general. Within year three various modules develop the skills needed for writing grant proposals or carrying out consultancy activity, developing Research literacy. An example is Advanced Genetics and Genomics, in which the students will synthesise information from the lectures and tutorials to address a current and challenging research question in the biological and medical sciences using the latest methodologies; thereby demonstrating awareness of current research.

Active citizenship is encouraged and nurtured in a number of ways: study abroad opportunities; work experience or industrial placements; and the inclusion of an optional 'Genomic Medicine' module at level 6 that is designed to encourage thinking beyond our cultural perspectives. Many topics addressed in the Biological Sciences (Human Biosciences) degree emphasise both local and global perspectives and studies examining human health and disease must essentially consider influences and impacts that span geographic, racial and social aspects. The department has internationally recognised experience in science communication and public engagement, students are encouraged to help with activities (offline and online) which further develops active citizenship.

Most of our modules include lectures and laboratory-based practicals or professionally-linked assignments. The average number hours of lectures and practicals per single credit module (150 hours student effort) adjusts as students become more independent (i.e. as they move from level 4 to levels 5 and 6) and also by subject are, as appropriate. Assessment weightings for coursework (and any final examination) reflect judgements on the typical study time expected for satisfactory completion of a piece of coursework. For each module, students are required to complete all assignments, and to achieve a pass grade of at least 40% from the aggregate marks of coursework and examination (unless otherwise stated in the module description).

The programme conforms to the University Regulations for the Undergraduate Modular Programme (UMP) (<http://www.brookes.ac.uk/regulations/current/specific/b2/> ).

## **SECTION 6: ADMISSION TO THE PROGRAMME**

### **6.1 ENTRY REQUIREMENTS**

Further details and admissions requirements can be found on the Oxford Brookes website.

Minimum offer:

- GCSE Mathematics, English Language and Double Integrated Science or equivalent at C grade minimum
- Studied science post 16 either at A-level, BTEC, Access, International Baccalaureate or equivalent

Students who are studying more than one science subject at A-level may receive a lower offer because of their evident commitment to science. Preferred science subjects include Biology, Human Biology, Chemistry, Mathematics and Physics.

In its mission statement the university has highlighted the need to widen access to higher education to those traditionally underrepresented among students. The department's provision to enable this strategy is to offer a one year foundation in collaboration with Abingdon and Witney College. Students who have successfully completed the foundation year can progress onto the BSc Biological Sciences (Human Biosciences).

### **Admissions with Credit (Accreditation of Prior learning)**

Applicants with relevant prior learning are welcome to apply and start the programme with exemption of some modules or the whole of year 1. In certain exceptional cases it may be possible to give credit to level 5 modules as well as for level 4 but it will not be possible to gain credit for level 6 modules.

### **English Language Requirements**

IELTS Level 6.0 overall with 6.0 in reading and writing, 5.5 in listening and speaking.

For further details of the University's English language requirements see:

<http://www.brookes.ac.uk/international/how-to-apply/english-language-requirements/>

## **6.2 DBS AND OTHER PRE-COURSE CHECKS REQUIRED**

Not applicable

## **6.3 JOB ROLE/EMPLOYER PROFILE (DEGREE AND HIGHER APPRENTICESHIPS)**

Not applicable

## **SECTION 7: PREPARATION FOR EMPLOYMENT**

With a firm grounding in physiology, supported by knowledge and skills in areas such as biochemistry, cell biology and molecular genetics, Biological Sciences (Human Biosciences) graduates are well prepared for careers in industry, biological organisations, college and university research and teaching, as well as medical and health-allied fields.

Employment prospects are varied. About half of our graduates are appointed in the science sectors, and recent graduates have gone on to medical school, become forensic scientists or taken research posts in companies or academia. The Human Bioscience graduate is also eminently well-qualified for a career in medical writing, as an exercise physiologist or as an immunology research scientist.

Due to the broad nature of our Human Biosciences degree, more than 20% of graduates go on to further study including second degrees, PGCEs, MScs and PhDs. Graduates have specialised in a wide range of subjects such as physiotherapy, medicine, nursing, biotechnology, psychology and plant cell biology.

We work closely with senior professional scientists both through individual collaborations and as a Department through our Bioinnovation Hub. These external employers advise us on what they look for in graduates and on employability-related skills taught and practiced within our programmes. Our partners come from a range of organisations, from larger multinational organisations to smaller and medium sized enterprises, including local pharmaceutical companies at nearby science parks and Universities spin-out companies such as the campus-based Oxford Expression Technologies.

We know from talking to employers that when they recruit they are looking for self-assured, flexible, independent-minded graduates; problem solvers with the skills and knowledge that will benefit their organisations. Our graduates are desirable to a broad range of scientific employers.

Students will also have opportunities to gain work experience and enhance their professional skills via our links with regional employers. The Department is situated in the middle of one of the 2 largest clusters of life science companies in the UK surrounded by 6 science parks. Academic staff also work with NHS professionals.

The Work Experience module gives the opportunity to work in a relevant organisation, often during part of a summer vacation, and in the process gain a module credit which counts towards the degree. A

significant number of our students carry out their third year Project with an external organisation. Within the Programme there is also the option of doing a year in Industry (Industrial Experience, minimum 9 months) between Year 2 and Year 3 of the standard programme. The extra year is also covered by The Students Loan Company so there is no need source extra funding for these opportunities.

To facilitate gaining work experience, as well as the Career Development module, we launched the Oxford Brookes Student Bioinnovation Hub, which is an initiative to enhance engagement with the Life Sciences industry to increase research income from industry and improve the employability of our students with active engagement from the local bioscience sector. The Bioinnovation Hub underpins our links with practitioners in the region and supports student projects and placements by a local industry partners including pharmaceutical, biotechnology and hospital labs. These industry-supported, real world projects prepare students for employment and offer a resource where industry and students can generate original, practical solutions to real world problems.