

PROGRAMME SPECIFICATION

Part 1: Information	
Awarding Institution	University of the West of England, Bristol
Teaching Institution	University of the West of England, Bristol
Delivery Location	University of the West of England, Bristol; Frenchay Campus
Study abroad / Exchange / Credit recognition	None
Faculty responsible for programme	Health and Applied Sciences
Department responsible for programme	Applied Sciences
Professional Statutory or Regulatory Body Links	Institute of Biomedical Science
Highest Award Title	MSci Biomedical Science
Default Award Title	
Interim Award Titles	BSc (Hons) Biomedical Science, Dip HE Biomedical Science Cert HE Biomedical Science
UWE Progression Route	N/A
Mode of Delivery	FT/PT/SW
ISIS code/s	
For implementation from	September 2019 (for new cohorts only)

Part 2: Description

The MSci Biomedical Science programme is a four-year full-time, or five-year sandwich degree designed to provide a comprehensive education for students interested in taking a hands-on approach to studying the biology of disease, and particularly those who have an interest in a research career. The programme is within our extensive biomedical science provision with an emphasis on the application of biomedical sciences and provision of a relevant education and practical skills that afford excellent and varied employment opportunities.

The programme combines theoretical and laboratory approaches to understanding the human body and disease, and at more advanced levels is research-informed and aligned with biomedical specialist themes. During the final year of study, students undertake an advanced extended research project alongside academic staff, the majority of whom are research-active as members of the Departmental Centre for Research in Biosciences (CRIB) http://www1.uwe.ac.uk/hls/research/biosciences/researchareas.aspx).

The programme provides:

- an overall educational experience that covers the broad educational requirements for IBMS and Health and Care Professions Council (HCPC) accreditation/registration, and benchmark core specialisms, but being research-informed at advanced levels, also provides knowledge and insight of advanced research and scientific developments associated with the study of health and disease.
- A further year of study beyond BSc level to develop and apply advanced research skills; particularly aimed at students who are interested in careers in research.
- opportunities for students from a wide range of backgrounds to develop and realise their potential in a supportive and responsive teaching and learning environment.
- added value for learners in their specialised, subject-specific knowledge and transferable skills.
- a coherent and flexible programme of study with a variety of attendance modes including a sandwich degree option, with overseas placement options.
- a programme responsive to feedback from students, external examiners and other stakeholders as part of quality programme management and enhancement.
- appropriate facilities and resources to deliver a quality teaching and learning experience.

More specific aims:

The programme integrates a wide range of bioscience subjects in the study of the biology of disease. The combination of modules offered enables students to understand the science of the causes, diagnosis and treatment of disease to an advanced level, and to engage in research at the cutting edge of biomedical sciences using state-of-the-art equipment and learning support material.

The modules are research-informed and where possible are led by the research and professional experience of staff. At Level 1, all modules are compulsory. At Level 2, students are offered some subject module options in addition to the compulsory material; student can begin to select subject areas of particular interest, leading into chosen core specialist themes (e.g. haematology, microbiology, genetics, biochemistry, immunology, oncology) and optional specialist areas (pharmacology, neuroscience, physiology) at Level 3 - and hence recommended or suggested module combinations that align with employability and career objectives. More entrepreneurial students can chose specialisms of Science Communication or Medical Technology and Enterprise. An extended research project at M-level in the final year, plus teaching in research methods, science communication, project management and current research issues, are designed to prepare MSci graduates for

careers in research.

Teaching, learning and assessment is enhanced by the use of online quizzes and interactive Blackboard technology, for example, online-assessment and feedback, and the use of open educational resources (and other in-house resources) in flipped classroom scenarios to support practical teaching.

There are opportunities for students to gain learning outside the curriculum, including short Summer Bursary opportunities, Year Placements as well as opportunities for students to partake in outreach activities including schools visits and the Bristol Festival of Nature.

Programme requirements for the purposes of the Higher Education Achievement Record (HEAR)

Level 1 comprises modules that cover the basic tenets of anatomy, physiology, cells, genetics, biochemistry and microbiology, in addition to a series of lectures and practical sessions introducing the study of disease. Together with these biomedical science subject areas, students completing Level 1 will have obtained various transferable skills during their biomedical skills module.

At Levels 2 & above the MSci Biomedical Science offers great flexibility of choice for students aiming for scientific careers, particularly in research. At advanced levels, it aligns to biomedical science themes, led by research-active staff within the Departmental Centre for Research in Biosciences. Students therefore gain a breadth of practical competencies alongside insight into cutting-edge research. The final (M-level) year focuses on the research process, including an extended research project, building on the previous years of study to develop students as independent researchers.

This MSci degree creates graduates who are independent thinkers, with outstanding analytical and problem-solving skills, equipped for a range of scientific or medical-related research careers. The programme offers a placement year, and provides opportunities for students to develop generic skills necessary for employment, such as practical and analytical skills, project management, use of technology and communication media.

Regulations

A: Approved to University Regulations and Procedures

Part 3: Learning Outcon	nes of th	e Prog	ramme	
Learning Outcomes: (Level 1)	L1 Anatomy & Physiol (30cr)	L1 Cell Biol, Biochem & Genetics (30cr)	L1 Infection and Disease (30cr)	L1 Biomedical Skills (30cr)
(Compulsory modules)		J ()	J 🕹	10
A) Knowledge and understanding of: Structure and function of the natural world The techniques used to gather and citically analyse data in the natural sciences Laboratory practical (P); Research skills	Р	Р	Р	PR
(R) Core biomedical science subject areas and a more specialist and deeper understanding of advancing areas of science The context of biomedical sciences and its				
application to practical problems within healthcare and research arenas The main attributes and the contribution of research and scholarship in their chosen				
specialist areas of biomedical science (B) Intellectual Skills	<u> </u>			
Students will develop the ability to:				
Actively question and seek relevant information				
Compare and contrast information from different sources online and offline				
Critically evaluate information against hypotheses in a range of research scenarios				
Actively analyse and apply problem-solving strategies				
Demonstrate independent self-directed learning, and skills for life-long learning (C) Subject/Professional/Practical Skills				
Students will develop the ability to: Critically observe, analyse and evaluate				
information arising from a wide range of sources				
Apply practical approaches to studying (biomedical) science, and be aware of research governance including safety and good laboratory practice				I
Communicate effectively scientific data and concepts in written and oral form				
Develop discipline-specific interests by specialising within the programme in relation to subject and/or career aspiration				
Demonstrate an understanding of the research process through the successful execution of an independent research project				
(D) Transferable skills and other attributes Students will develop the ability to:				
Communicate effectively and appropriately using a variety of methods				
Critically and statistically present and analyse data arising from various means of inquiry				
Undertake active learning and development Apply information management skills				
Practice effective time management and become independent and lifelong learners				
Evaluate performance of self and others through reflective practice and observation				

Part 3: Learning Outcomes of the Programme (cont'd)												
Learning Outcomes: (Levels 2, including L2 Optional – O – modules)	L2 Applied Scientific Practice (15cr)	L2 Molecular Cell Biology (15cr)	L2 Studies in the Biol of Disease (30cr)	L2 O Pharmacology	L2 O Immunology	L2 O Molecular Genetics	L2 O Tissue and Tumour Science	L2 O Medicinal Chemistry	L2 O Blood Science	L2 O Microbiology	L2 O Cell Signaling	L2 O Human Physiology (30cr)
A) Knowledge and understanding of: Structure and function of the natural world The techniques used to gather and critically analyse data in the natural sciences Laboratory practical (P); Research skills (R) Core biomedical science subject areas and a more specialist and deeper understanding of advancing areas of science The context of biomedical sciences and its application to practical problems within healthcare and research arenas The main attributes and the contribution of research and scholarship in their chosen specialist areas of biomedical science (B) Intellectual Skills	R	P	P		P	P	P	P	P	P	P	P
Students will develop the ability to: Actively question and seek relevant information Compare and contrast information from different sources online and offline Critically evaluate information against hypotheses in a range of research scenarios Actively analyse and apply problem-solving strategies Demonstrate independent self-directed learning, and skills for life-long learning (C) Subject/Professional/Practical Skills Students will develop the ability to:												
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independent research project (D) Transferable skills and other attributes Students will develop the ability to: Communicate effectively and appropriately using a variety of methods Critically and statistically present and analyse data arising from various means of inquiry Undertake active learning and development Apply information management skills Practice effective time management and become independent and lifelong learners Evaluate performance of self and others through												

Part 3: Learning Outcomes of the Programme (cont'd)							
Learning Outcomes: (Level 3) (Project/Core specialisms)	L3 Research Dissertation OR Research Experimental Project	L3 Haematology & Transfusion Science	L3 Cell Pathology & Oncology	L3 Applied Immunology	L3 Clinical Biochemistry	L3 Medical Microbiology	L3 Medical Genetics
A) Knowledge and understanding of:		i	i	i	i	i	
Laboratory practical competence							
Core biomedical science subject areas and a more specialist and deeper understanding of advancing areas of science	V						
The context of biomedical sciences and its application to practical problems within healthcare and research arenas							
The main attributes and the contribution of research and scholarship in their chosen specialist areas of biomedical science							
(B) Intellectual Skills					I		
Students will develop the ability to: Actively question and seek relevant information	<u> </u>						
Compare and contrast information from different sources online and offline	<u> </u>						
Critically evaluate information against hypotheses in a range of research scenarios							
Actively analyse and apply problem-solving strategies Demonstrate independent self-							
directed learning, and skills for life-long learning							
(C) Subject/Professional / / / / / / / / / / / / / / / / / / /							
Students will develop the ability to: Critically observe, analyse and evaluate information arising	<u> </u>						
from a wide range of sources Apply practical approaches to studying biomedical science, and be aware of research governance including safety and good laboratory practice							
Communicate effectively scientific data and concepts in written and oral form	<u> </u>						
Develop discipline-specific interests by specialising within the programme in relation to subject and/or career aspiration							

Demonstrate an understanding of the research process through the successful execution of an independent research project	<u> </u>			
(D) Transferable skills and other attributes				
Students will develop the ability to:				
Communicate effectively and appropriately using a variety of methods				
Critically and statistically present and analyse data arising from various means of inquiry				
Undertake active learning and development	<u> </u>			
Apply information management skills	<u> </u>			
Practice effective time management and become independent and lifelong learners	<u> </u>			
Evaluate performance of self and others through reflective practice and observation	<u> </u>			

Part	Part 3: Learning Outcomes of the Programme (cont'd)										
Learning Outcomes: (Level 3) (Optional modules "O")	L3 O Pharmacology & Toxicology	L3 O Antimicrobial Agents	L3 O Pathophysiology	L3 O Physical Activity, Nutrition & Health	L3 O Neuroscience & Neuropharmacology	L3 O Science Communication	L3 O Epidemiology & Public Health	L3 O Development & Stem Cell Science	L3 O Medical Technology & Enterprise	L3 O Genomic Technologies	L3 O Professional Practice in Applied Sciences
A) Knowledge and understanding of: Laboratory practical competence Core biomedical science subject areas and a more specialist and deeper understanding of advancing areas of science The context of biomedical sciences and its application to practical											
problems within healthcare and research arenas The main attributes and the contribution of research and scholarship in their chosen specialist areas of biomedical science (B) Intellectual Skills											
Students will develop the ability to: Actively question and											

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Compare and contrast										
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sources online and										
offline										
Critically evaluate										
information against										
hypotheses in a range of research scenarios										
Actively analyse and										
apply problem-solving										
strategies										
Demonstrate										
independent self-directed			• •							
learning, and skills for										
life-long learning										
(C) Subject/Professional/					L		4		L	
Practical Skills										
Students will develop the										
ability to:										
Critically observe,										
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information arising from a										
wide range of sources				<u> </u>				<u> </u>		
Apply practical										
approaches to studying biomedical science, and										
be aware of research										
governance including										
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(D) Transferable skills and		<u>i</u>		.1	L	I	1	I	L	
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Practice effective time										
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become independent and										
lifelong learners										
Evaluate performance of										
self and others through										
reflective practice and										
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Part 3: Learning Outcomes of the Programme (Level M)						
Learning Outcomes: (Level M)	LM Research in Practice	LM Research with Impact	LM Current Issues in Biomedical Research			
A) Knowledge and understanding of:						
Laboratory practical competence						
Core biomedical science subject areas and a more specialist and deeper understanding of advancing areas of science The context of biomedical sciences and						
its application to practical problems within healthcare and research arenas	•					
The main attributes and the contribution of research and scholarship in their chosen specialist areas of biomedical science						
(B) Intellectual Skills						
Students will develop the ability to: Actively question and seek relevant information						
Compare and contrast information from different sources online and offline						
Critically evaluate information against hypotheses in a range of research scenarios						
Actively analyse and apply problem- solving strategies						
Demonstrate independent self-directed learning, and skills for life-long learning (C) Subject/Professional/Practical						
Skills						
Students will develop the ability to:						
Critically observe, analyse and evaluate information arising from a wide range of sources						
Apply practical approaches to studying biomedical science, and be aware of research governance including safety and good laboratory practice						
Communicate effectively scientific data and concepts in written and oral form						
Develop discipline-specific interests by specialising within the programme in relation to subject and/or career aspiration						
Demonstrate an understanding of the research process through the successful execution of an independent research project						
(D) Transferable skills and other attribute	: S	1	tL.			
Students will develop the ability to:						
Communicate effectively and appropriately using a variety of methods						
Critically and statistically present and analyse data arising from various means of inquiry						
Undertake active learning and development						
Apply information management skills						

Practice effective time management and become independent and lifelong learners		
Evaluate performance of self and others through reflective practice and observation		

Part 4: Programme Structure

This structure diagram demonstrates the student journey from Entry through to Graduation for a typical **full time undergraduate student** including: level and credit requirements, interim award requirements, module diet including compulsory and optional modules

ENTRY		Compulsory Modules	Optional Modules	Awards
		Infection and Disease		
		USSKA7-30-1		Interim award:
	_	Biomedical Skills USSKA5-30-1		
	Level	Human Anatomy & Physiology USSKA3-30-1	None	Cert HE Biomedical Science
		Cells Biochemistry and Genetics USSKA4-30-1		120 credits

	Compulsory Modules	Optional Modules	Interim Awards
	Studies in the Biology of	Pharmacology	
	Disease	USSJXP-15-2	
	USSKAT-30-2	Immunology	Interim award:
		USSJXQ-15-2	micrim awara.
		Molecular Genetics USSKB7-15-2	Dip HE
	Malagular Call Dialogue		Biomedical
	Molecular Cell Biology	Tissue and Tumour	Science
7	USSJXR-15-2	Science	
<u>e</u>		USSJXT-15-2	240 credits
Level		Medicinal Chemistry	(at least 100 credits at
-		USSKB5-15-2	level 2)
		Blood Science	icvci z)
		USSJXU-15-2	
	Applied Scientific	Microbiology	
	Practice	USSKB6-15-2	
	USSJXS-15-2	Cell Signalling	
		USSKB4-15-2	
		Human Physiology	
		USSJXV-30-2	

Placement year: Students may elect to spend a year out working for an organization in an appropriate placement to gain relevant experience. Credit is achieved through the USSK57-15-3 Professional Practice in Applied Sciences module.

	Compulsory Modules	Optional Modules	Interim Awards
	Project module + ≥1 *Core specialist modules		
	Research Dissertation Project USSKBC-30-3 OR Research Experimental Project USSK5K-30-3	Pharmacology & Toxicology USSKBX-15-3 Antimicrobial Agents USSKBY-15-3	Interim award: BSc Biomedical Science Credit requirements:
	*Haematology & Transfusion Science USSKBK-30-3	Pathophysiology USSKBW-15-3	300 (at least 60 credits at level 3)
	*Clinical Biochemistry USSKBL-30-3	Physical Activity, Nutrition & Health USSJXW-15-3	HIGHEST AWARD:
Level 3	*Medical Microbiology USSKBJ-30-3	Neuroscience & Neuropharmacology USSKCA-15-3	BSc (Hons) Biomedical Science
	*Applied Immunology USSKBN-30-3	Science Communication USSKCE-15-3	Credit requirements: 360 (at least 200
	*Medical Genetics USSKBH-30-3	Epidemiology and Public Health USSJYW-15-3	credits at level 2 or above; at least 100 at level 3)
		Developmental and Stem Cell Science USSJXY-15-3	,
		Medical Technology and Enterprise USSJYX-15-3	
	*Cellular Pathology & Oncology USSKBM-30-3	Genomic Technologies USSKBF-30-3 Professional Practice in Applied Science USSK57-15-3	
	Research in Practice USSKM6-60-M		MSci Biomedical Science
Year 4 (M)	Research with Impact USSKM5-30-M		Credit requirements: 480 (360 at undergraduate level; 30 + 30 credit taught
	Current Issues in Biomedical Research USSKM7-30-M		modules, plus 60 credit Research in Practice module at M-Level

Part time:

Part-time students simply take 60 credits per year; so Level 1, Level 2, Level 3 and M are each taken over 2 years.

Part 5: Entry Requirements

The University's Standard Entry Requirements apply:

128 UCAS Tariff Points for the year of entry taking as a base entry point GCSE grade C/4 or above in English Language, Mathematics and Double Science. a minimum of two A-Levels is required, at Grade B or above in Biology or Chemistry, plus a Grade C or above in another science subject.

Tariff points as appropriate for the year of entry - up to date requirements are available through the courses database.

Part 6: Reference Points and Benchmarks

Set out which reference points and benchmarks have been used in the design of the programme:

QAA UK Quality Code for HE

-Framework for higher education qualifications (FHEQ)

The learning outcomes for the programme have been developed with reference to the qualification descriptors used in the QAA Framework for HE Qualifications. The learning outcomes for modules at level one and level two have been considered to be consistent with the award of a Certificate in Higher Education and a Diploma in Higher Education, respectively. The learning outcomes for the modules at Level 3 are considered consistent with the QAA's descriptor for a higher education qualification at level 6: Bachelor's degree with honours. The learning outcomes for the modules in the final (MSci) year are considered consistent with the QAA's descriptor for a higher education Master's Degree qualification. Graduates of the MSci award will have acquired the knowledge and understanding, and gained the intellectual, subject, professional, practical and transferable skills listed in previous sections, and will have developed skills, understanding and critical awareness at an advanced level in the Biomedical Sciences, together with advanced research and communications skills consistent with employment in biomedical research science.

-Subject benchmark statements

Levels 1-3 of the curriculum and skills map to the QAA subject benchmark statements for **Biomedical Sciences (November 2015)** in order to embrace a broad range of scientific and medical knowledge, alongside the research and practical skills that are expected of a graduate in order to become a competent biomedical scientist. The MSci is still classified as an undergraduate qualification; there are no additional benchmark statements at MSci level per se.

The broadly based core knowledge sub-headings for general inclusion within the Biomedicine benchmark (QAA Statement for Biomedical Sciences, Section 5 (November 2015) are listed as human anatomy and physiology, cell biology, biochemistry, genetics genomics and human variation, molecular biology, the nature of disease, bioinformatics, microbiology, immunology, pharmacology, developmental biology and physics/chemistry. All of these subjects are provided within compulsory modules in this programme. This provides students with an integrated knowledge of the human body at a physiological, cellular, molecular and genetic level, in both health and disease. At Level 1, modules provide a foundation of generic biomedical content including scientific and analytical skills, biology of disease, biochemistry, microbiology, and genetics. At Level 2, building on core subjects, there is the introduction of

choice around research themes, so that students can develop research interests aligned to their career aspirations. As well as achieving the benchmarking goals of understanding a "multidisciplinary approach to the study of human disease", students also develop "an awareness of the current methods used for the laboratory investigation, diagnosis and monitoring of disease..." The level of choice extends in Level 3, with more advanced modules aligned to the research core specialist themes "Subject-specific knowledge, understanding and skills" (Cellular Pathology & Oncology, Clinical Biochemistry, Applied Immunology, Haematology & Transfusion Science, Medical Microbiology, and Medical Genetics). These align with those under the QAA Statement for Biomedical Sciences, Section 6 (November 2015).

Strategy 2020

The aim of the Department of Applied Sciences is to evolve a portfolio of programmes that align with the UWE 2020 Strategy which states:

"Connecting and working with our local and regional economy, businesses and communities and international partners to advance knowledge, and to advance the health, sustainability and prosperity of our locality and region".

"Being digitally advanced, agile and responsive in the way we work, embracing and leading change to create new sustainable opportunities".

Biomedical Science connects with external partners including business, the National Health Service and communities. In order to achieve high quality and outstanding delivery, our programmes are aligned with quality and professional frameworks (QAA Framework for Higher Education (FHEQ) – see above.

University policies

University teaching and learning ethos.

In line with the University's teaching and learning ethos, this programme takes a student-centred approach to learning by allowing students to take control of aspects of their learning and providing a learning environment that stimulates active participation and engagement in the learning process. The programme seeks to create an environment that stimulates students to take responsibility for aspects of their learning, while lecturers facilitate that learning. The module learning outcomes are designed to ensure that students meet the overall programme learning outcomes by completion.

A variety of assessment methods is incorporated within the programme to cater for a diversity of student strengths and abilities. The course team recognises the importance of both formative and summative assessment activity as an integral part of the learning and teaching process. All assessments comply with the University Assessment Policy, Academic Regulations and Procedures and the Work-based Learning Policy (http://www1.uwe.ac.uk/aboutus/policies).

Research themes underpinning the programme

Academic staff involved in the MSci Biomedical Science programme come from a diversity of backgrounds including industry, healthcare and research. At Levels 2 and 3 the modules are strongly underpinned by the research expertise of the team. The majority of staff involved are research-active and the Faculty strongly supports the research activities, particularly within the Centre for Research in Biosciences (CRIB). Within the Level 3 core biomedical subject specialisms, and the Level 3 research project, and Level M Research in Practice extended project, research themes reflect staff strengths.

External collaborator and outreach

The MSci Biomedical Science degree is accredited through the IBMS, and up-to-date undergraduate module core content and choice therefore remains important for those considering continuing professional development. This necessitates ongoing and close liaison with employers of Biomedical Science graduates and post-graduates. This is extremely important and is achieved in the following ways:

- A culture of two-way communication exists between University academic staff and biomedical scientists within the South West, in particular the Joint Training Officers (JTO) group.
- UWE has representation on the local IBMS Branch Committee and several of the associated discussion groups. These and many other opportunities for sharing ideas and views exist and are actively used to the advantage of all parties.
- Practitioners are actively involved in the design, delivery and continued development of the Biomedical Science programme. Similarly, service users are consulted on a regular basis to ensure that the programme delivers education and training that matches service needs.
- The Joint Training Officer's Committee monitors and advises on the operation of any available IBMS accredited training places, in accordance with agreed standards and policies. In addition, this committee provides a valuable forum for practitioners' views on the undergraduate provision, and for discussion pertaining to development of the degree programme.
- Academic staff supervising sandwich (year-long) placements via electronic e-portfolio sharing, onsite placement visits; and shorter term local placements or internships; these facilitate the development of collaborations, and achieve a valuable professional "voice" that advises all of our programmes.

FOR OFFICE USE ONLY

First CAP Approval Date		May 2016			
Revision Approval Date	28/11/2018		Version	3	PER 28/11/2018 – see PER outcome report
Next Periodic					
Curriculum					
Review due date					
Date of last	28/11/2	2018			
Periodic					
Curriculum					
Review					