

BSc (Hons) Biomedical Science

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Overview

Awarding institution	Bath Spa University
Teaching institution	Bath Spa University
School	School of Sciences
Main campus	Newton Park
Other sites of delivery	n/a
Other Schools involved in delivery	n/a
Name of award(s)	Biomedical Science
Qualification (final award)	BSc (Hons)
Intermediate awards available	CertHE, DipHE
Routes available	Single
Professional Placement Year	Yes
Duration of award	3 years full-time, 4 years with professional placement year, 6 years part-time

Modes of delivery offered	Campus-based
Regulatory Scheme[1]	Undergraduate Academic Framework
Exemptions from regulations/framework[2]	No
Professional, Statutory and Regulatory Body accreditation	n/a but aligned with requirements for IBMS for future accreditation
Date of most recent PSRB approval (month and year)	n/a
Renewal of PSRB approval due (month and year)	n/a
UCAS code	BMS1, BMS2 (with PPY year)
Route code (SITS)	BISSIN Biomedical Science BISSIN-SW Biomedical Science with PPY
Relevant QAA Subject Benchmark Statements (including date of publication)	Biomedical Sciences (October 2019)
Date of most recent approval	September 2022
Date specification last updated	September 2022

[1] This should also be read in conjunction with the BSU Qualifications Credit Framework

[2] See section on 'Exemptions'

Exemptions

There are no exemptions

Programme Overview

This discipline encompasses an understanding of human diseases, the development of new drugs and treatments as well as being at the heart of diagnosing, monitoring and treating disease states. You will have the opportunity to learn the cellular, molecular, and genetic basis of disease states and gain the practical skills to be able to work in one of the many different fields of biomedical science, whether it be hospital laboratory work, research or in industry. With elements of microbiology, biochemistry, physiology and nutrition, as well as the option for a placement year, this multidisciplinary approach to biomedical science will provide you with an opportunity to gain the knowledge and practical skills to allow you to enter any area of employment, and to contribute to whatever branch of biomedical science you wish to follow. The course content is aligned with the specific and vocational requirements detailed in the QAA Subject Benchmark Statement for Biomedical Sciences. Graduates would be able to apply for professional accreditation following completion of the programme.

At the start of the course, you will be introduced to a broad range of subjects that underpin the study and understanding of biomedical science. You will be taught anatomy and physiology, how the body and cells work before moving on to learn about disease states and pathology, as well as learning about therapies for diseases. Skills in research are at the heart of the degree, with the aim that students will graduate with practical laboratory skills as well as communication, team working and problem-solving skills, ready for the workplace or further study. You will be trained in research methodology, and have an opportunity to become an independent and autonomous learner. The programme aims to encourage students to engage with work placement opportunities within the varied area of biomedical or related fields.

Programme Aims

1. To provide students with a relevant, interesting and challenging programme that allows development of the practical skills required of a biomedical science graduate.
2. To provide graduates with a broad understanding of the complex scientific basis of human health, disease and therapeutic interventions.
3. To produce critical and creative thinking graduates, with an informed understanding and awareness of the biomedical sciences.
4. To support students in becoming independent evidence-based problem solvers in a challenging and changing world.
5. To prepare graduates for a career in biomedical science, recognising the moral and ethical issues of biomedical practice, and appreciating the need for ethical standards and professional standards of proficiency.
6. To improve career opportunities for graduates by offering choice throughout the programme, and encouraging engagement with external organisations to include volunteer and placement work.

Programme Intended Learning Outcomes (ILOs)

A Subject-Specific Skills and Knowledge

	Programme Intended Learning Outcomes (ILOs)	On Achieving Level 5	On Achieving Level 4
	On Achieving Level 6		
A1	Systematic understanding of biomedical science methods and practices associated with human health and disease.	Critical understanding of biomedical science methods and practices associated with human health and disease.	Knowledge of biomedical science methods and practices associated with human health and disease.
A2	Conceptual understanding that enables the critical analysis of techniques applied to health maintenance, disease prevention and the investigation, diagnosis, monitoring, and therapy of human disease.	Application of concepts underpinning health maintenance, disease prevention and the investigation, diagnosis, monitoring, and therapy of human disease.	A knowledge base of health maintenance, disease prevention and the investigation, diagnosis, monitoring, and therapy of human disease.
A3	Critically apply practical techniques of data collection, analysis, and interpretation to extend knowledge and understanding within the context of biomedical sciences.	Apply established practical techniques of data collection, analysis, and interpretation of those data.	An understanding of practical techniques of data collection, analysis and interpretation of those data
A4	Systematic understanding of current laboratory methods available for the study, investigation, diagnosis and monitoring of human health and disease in clinical and research environments.	Critically evaluate laboratory methods available for the study, investigation, diagnosis and monitoring of human health and disease in clinical environments.	Knowledge of key current laboratory methods available for the study, investigation, diagnosis and monitoring of human health and disease in clinical environments.
A5	A conceptual understanding of the rapid evolution within the biomedical sciences, and appreciation of therapeutic intervention strategies. Understanding that what has been taught is likely to change in the future.	A critical understanding of the rapid evolution within the biomedical sciences and knowledge of therapeutic intervention strategies.	An understanding of the rapid evolution within the biomedical sciences.
A6	Applied systematic understanding and reflection upon ethical issues and professional codes of conduct, alongside the impact on society of advances in biomedical science.	Ability to apply reflection upon ethical issues and professional codes of conduct, alongside the impact on society of advances in biomedical science.	An understanding of ethical issues and professional codes of conduct.

A7	Systematic understanding of the contribution of biomedical science within healthcare settings and critically challenge the sustainability of health and wellbeing.	Critical understanding of the contribution of biomedical science within healthcare settings	Understanding of the contribution of biomedical science within healthcare settings.
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B Cognitive and Intellectual Skills

	Programme Intended Learning Outcomes (ILOs)	On Achieving Level 5	On Achieving Level 4
	On Achieving Level 6		
B1	The ability to manage the planning, execution, and presentation of a piece of hypothesis driven work within a supported framework, demonstrating time management, problem solving and independence	The ability to plan, execute and present a piece of hypothesis driven work within a supported framework, demonstrating time management, problem solving and independence.	Knowledge of approaches used to develop a scientific hypothesis within a supported framework.
B2	The ability to access and evaluate biomedical sciences information from different sources, and to communicate these both orally and in writing in a way that is organised, topical and recognises the limits of current hypotheses.	The ability to access and evaluate biomedical sciences information from different sources, and to communicate these both orally and in writing in a way that is organised, and topical.	The ability to access biomedical sciences information from different sources, and to communicate these both orally and in writing.
B3	The ability to critically assess the evidence base for scientific claims, by reading primary literature and commenting on the adequacy of the methods, data and interpretation.	The ability to assess the evidence base for scientific claims, by reading primary literature and commenting on the adequacy of the methods, data, and interpretation.	An understanding of the evidence base for scientific claims; developed alongside reading primary literature.
B4	The ability to deploy appropriate practical techniques in a responsible, safe, and ethical manner, paying due attention to risk assessment, health and safety considerations and ethical issues such as informed consent.	Application of practical techniques, paying due attention to risk assessment, relevant health and safety considerations and ethical issues such as informed consent.	The ability to evaluate practical techniques, paying due attention to risk assessment, and relevant health and safety considerations.

C Skills for Life and Work

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	Programme Intended Learning Outcomes (ILOs) On Achieving Level 6	On Achieving Level 5	On Achieving Level 4
C1	Autonomous learning ^[3] (including time management) that shows the exercise of initiative and personal responsibility and enables decision-making in complex and unpredictable contexts.	Autonomous learning (including time management) as would be necessary for employment requiring the exercise of personal responsibility and decision-making such that significant responsibility within organisations could be assumed.	Autonomous learning (including time management) as would be necessary for employment requiring the exercise of personal responsibility.
C2	Team working skills necessary to flourish in the global workplace with an ability both to work in and lead teams effectively.	Team work as would be necessary for employment requiring the exercise of personal responsibility and decision-making for effective work with others such that significant responsibility within organisations could be assumed.	Team work as would be necessary for employment requiring the exercise of personal responsibility for effective work with others.
C3	Communication skills that ensure information, ideas, problems and solutions are communicated effectively and clearly to both specialist and non-specialist audiences.	Communication skills commensurate with the effective communication of information, arguments and analysis in a variety of forms to specialist and non-specialist audiences in which key techniques of the discipline are deployed effectively.	Communication skills that demonstrate an ability to communicate outcomes accurately and reliably and with structured and coherent arguments.
C4	IT skills and digital literacy that demonstrate core competences and are commensurate with an ability to work at the interface of creativity and new technologies.	IT skills and digital literacy that demonstrate the development of existing skills and the acquisition of new competences.	IT skills and digital literacy that provide a platform from which further training can be undertaken to enable development of new skills within a structured and managed environment.

[3] i.e. the ability to review, direct and manage one's own workload

Programme content

This programme comprises the following modules

Key:

Core = C

Required = R

Required* = R*

Optional = O

Not available for this status = N/A

If a particular status is greyed out, it is not offered for this programme.

Subject offered as single award

Level	Code	Title	Credits	Single	Joint
4	BIO4200-20	Biomedical Skills	20	C	
4	BIO4101-20	Introduction to Biochemistry	20	C	
4	BIO4201-20	Infection and Immunity	20	C	
4	BIO4202-20	Anatomy and Physiology	20	C	
4	BIO4203-20	Cell Biology and Genetics	20	C	
4	BIO4100-20	The Microbial World	20	C	
5	BIO5200-20	Research Skills for Biomedical Science	20	C	
5	BIO5201-20	Blood Science	20	C	
5	BIO5005-20	Pathophysiology and Nutrition	20	C	
5	BIO5202-20	Pharmacology and Toxicology	20	C	
5	BIO5102-20	Biology Work Placement	20	O	
5	BIO5105-20	Biotechnology	20	O	
5	BIO5004-20	Applied Microbiology	20	O	
5	BIO5101-20	Human Nutrition	20	O	
5	PSY5107-20	Clinical Psychology	20	O	

5	PPY5100-120	Professional Placement Year	120	O	
6	BIO6700-20	BMS Dissertation Planning	20	C	
6	BIO6701-20	BMS Dissertation Publication	20	C	
6	BIO6702-20	Clinical Biochemistry	20	C	
6	BIO6703-20	Mechanisms of Disease	20	C	
6	BIO6704-20	Applied Sport and Exercise Nutrition	20	O	
6	BIO6101-20	Epidemiology and Public Health	20	O	
6	BIO6100-20	Food Safety	20	O	
6	PSY6107-20	Advanced Topics in Psychology	20	O	

Assessment methods

A range of summative assessment tasks will be used to test the Intended Learning Outcomes in each module. These are indicated in the attached assessment map which shows which tasks are used in which modules.

Students will be supported in their development towards summative assessment by appropriate formative exercises.

Please note: if you choose an optional module from outside this programme, you may be required to undertake a summative assessment task that does not appear in the assessment grid here in order to pass that module.

Work experience and placement opportunities

Work Placement opportunities are available as an optional module at level 5 (BIO5102-20 Biology Work Placement) or as a Professional Placement Year (PPY) between levels 5 and 6. These could be with local or international organisations as arranged by the students and advised by a variety of tutors with a range of contacts.

All placements will be dependent on the external conditions at the time and may be affected by factors beyond our control including public health concerns (such as measures to control infectious disease epidemics).

Graduate Attributes

	Bath Spa Graduates...	In Biomedical Science, we enable this...
1	Will be employable: equipped with the skills necessary to flourish in the global workplace, able to work in and lead teams	<p>By using a variety of teaching, learning and assessment techniques which expose and engage the students with authentic real-world scenarios.</p> <p>Students work collaboratively at all levels with opportunities for group work and are encouraged to undertake work experience and exchange opportunities</p>
2	Will be able to understand and manage complexity, diversity and change	<p>By introducing our students to topical issues within the biomedical field. Students will have to understand and interpret the complex, sometimes changing and opposing evidence</p>
3	Will be creative: able to innovate and to solve problems by working across disciplines as professional or artistic practitioners	<p>By developing our students' understanding of creativity and giving them the opportunity for their creative skills to flourish through problem solving and working with others.</p> <p>Many modules are available which involve collaborative working across disciplines on real-world projects</p>
4	Will be digitally literate: able to work at the interface of creativity and technology	<p>Providing a curriculum which includes regular and diverse interaction with digital technology that develops skills and deep understanding. We provide opportunities for students to write for different audiences with different needs and interests using different digital communication techniques.</p> <p>Biomedical Science students are taught the digital literacy skills that are required to conduct the activities (writing scientific papers, blogging, creating multimedia presentations, online discussion fora etc) that form part of the daily university life.</p> <p>Students will also learn appropriate data analysis techniques throughout the Programme.</p>

5	<p>Will be internationally networked: either by studying abroad for part of the their programme, or studying alongside students from overseas</p>	<p>By encouraging students to take opportunities to study or work abroad (e. g. BSU's Global Citizenship Award), and by using our internationally relevant curriculum to build their confidence to do so.</p> <p>We endeavour to ensure our graduates are culturally aware and are able to connect with communities both here in the UK, Europe and abroad and make a valuable contribution to the world economy. We equip our students with the knowledge and skills to work in the UK, Europe and abroad.</p>
6	<p>Will be creative thinkers, doers and makers</p>	<p>By giving students opportunities to think creatively and imaginatively in their interpretation and presentation of scientific information. As part of the curriculum our students explore and reflect on different methods of solving problems and generating ideas.</p> <p>Students will be equipped with a toolkit of strategies and will be able to select and use them to deliver results in appropriate contexts. The programme has developed assessments which mimic what happens in the workplace. This provides students with a portfolio of work which they can show to potential employers.</p>
7	<p>Will be critical thinkers: able to express their ideas in written and oral form, and possessing information literacy</p>	<p>By setting assessments that allow students to develop their creative skills within the context of Biomedical Science. Our students will be able to operate in complex and unpredictable contexts demanding the selection and application from a wide range of innovative or standard techniques. They will be able to work independently to plan and manage work.</p> <p>They will also have the ability to be a member of a team and accept responsibility for determining and achieving personal and/or group outcomes. They will also have an awareness of the different methods of communication and an ability to choose the most appropriate method for a given situation.</p>
8	<p>Will be ethically aware: prepared for citizenship in a local, national and global context</p>	<p>By requiring our students to consider ethical issues surrounding their own and others' work, our students on graduation will have the ability to exercise intellectual skills including applying subject knowledge and understanding, to address familiar and unfamiliar problems and appreciating the need for ethical standards and professional codes of conduct.</p>

Modifications

Module-level modifications

Code	Title	Nature of modification	Date(s) of approval and approving bodies	Date modification comes into effect

Programme-level modifications

Nature of modification	Date(s) of approval and approving bodies	Date modification comes into effect

Attached as appendices:

1. Programme structure diagram
2. Map of module outcomes to level/programme outcomes
3. Assessment map
4. Module descriptors

Appendix 1: Programme Structure Diagram – Biomedical Science

Modules in italics are modules from outside the Biology Subject.

Level 4 -120 credits of core modules	
Semester 1	Semester 2
Biomedical Skills (C)	Anatomy and Physiology (C)
Introduction to Biochemistry (C)	The Microbial World (C)
Infection and Immunity (C)	Cell Biology and Genetics (C)

Level 5 – 80 credits of core modules, 40 credits of optional modules	
Semester 1	Semester 2
Research Skills for Biomedical Science (C)	Pathophysiology and Nutrition (C)
Blood Science (C)	Pharmacology and Toxicology (C)
Biotechnology (O)	Applied Microbiology (O)
Biology Work Placement (O)	Biology Work Placement (O)
Human Nutrition (O)	<i>Clinical Psychology</i> (O)

Optional Professional Placement Year

Level 6 – 80 credits of core modules, 40 credits of optional modules	
Semester 1	Semester 2
Dissertation Planning for BMS (C)	Dissertation Publication for BMS (C)
Clinical Biochemistry (C)	Mechanisms of Disease (C)
Applications of Sport & Ex. Nutrition (O)	Epidemiology and Public Health (O)

Food Safety (O)

Advanced Topics in Psychology (O)

Appendix 2: Map of Intended Learning Outcomes

Level	Module Code	Module Title	Status (C,R,R*,O)[4]	Intended Learning Outcomes														
				Subject-specific Skills and Knowledge							Cognitive and Intellectual Skills				Skills for Life and Work			
				A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	C1	C2	C3	C4
4	BIO4200-20	Biomedical Skills	C	x	x	x	x	x	x	x	x	x	x	x	x			x
4	BIO4101-20	Introduction to Biochemistry	C	x	x	x					x		x	x	x	x	x	x
4	BIO4201-20	Infection and Immunity	C	x	x	x	x	x				x	x	x	x		x	x
4	BIO4202-20	Anatomy and Physiology	C	x	x	x							x	x	x	x		
4	BIO4203-20	Cell Biology and Genetics	C	x	x	x		x	x	x		x	x	x	x		x	
4	BIO4100-20	The Microbial World	C		x	x							x	x	x	x		
5	BIO5200-20	Research Skills for BMS	C			x		x	x	x	x	x	x	x	x	x	x	x
5	BIO5201-20	Blood Science	C	x	x	x	x	x		x		x		x	x	x	x	x
5	BIO5005-20	Pathophysiology & Nutrition	C		x	x								x	x	x	x	
5	BIO5202-20	Pharmacology & Toxicology	C	x	x	x	x							x	x			x
5	BIO5102-20	Biology Work Placement	O					x	x	x	x	x			x	x	x	
5	BIO5105-20	Biotechnology	O			x								x	x		x	x
5	BIO5004-20	Applied Microbiology	O		x	x							x	x	x	x	x	x
5	BIO5101-20	Human Nutrition	O		x										x		x	x
5	PSY5007-20	Clinical Psychology	O		x				x			x			x	x	x	x
5	PPY5100-120	Professional Placement Year	O				x	x	x			x			x	x	x	x
6	BIO6700-20	BMS Dissertation Planning	C				x	x	x	x	x		x	x	x		x	x
6	BIO6701-20	BMS Dissertation Publication	C			x	x	x	x	x	x	x	x	x	x		x	x
6	BIO66702-20	Clinical Biochemistry	C	x	x	x	x	x	x	x		x	x	x	x	x	x	x
6	BIO66703-20	Mechanisms of Disease	C	x	x	x	x	x		x	x		x	x	x	x	x	x

6	BIO6004-20	App. Sport & Ex. Nutrition	O	x	x									x	x	x	x	
6	BIO6101-20	Epidemiology & Public Health	O	x										x		x	x	
6	BIO6100-20	Food Safety	O		x							x	x	x	x			
6	PSY6107-20	Advanced Topics in Psych.	O											x		x	x	

[4] C = Core; R = Required; R* = Required*; O = Optional

Appendix 3: Map of Summative Assessment Tasks by Module

Level	Module Code	Module Title	Status (C,R,R*,O)[5]	Assessment method									
				Coursework				Practical				Written Examination	
				Essay	Report	Poster	Proposal	Paper	Practical skills	Data Analysis	Presentation	Written Examination (open book)	Written Examination (unseen)
4	BIO4200-20	Biomedical Skills	C					1x					1x
4	BIO4101-20	Introduction to Biochemistry	C						1x			1x	
4	BIO4201-20	Infection and Immunity	C	1x		1x							
4	BIO4202-20	Anatomy and Physiology	C							1x			1x
4	BIO4203-20	Cell Biology and Genetics	C	1x							1x		
4	BIO4100-20	The Microbial World	C		1x			1x	1x				
5	BIO5200-20	Research Skills for BMS	C			1x							
5	BIO5201-20	Blood Science	C								1x		1x
5	BIO5005-20	Pathophysiology & Nutrition	C							1x			1x
5	BIO5202-20	Pharmacology & Toxicology	C						1x			1x	
5	BIO5102-20	Biology Work Placement	O		1x		1x						

5	BIO5105-20	Biotechnology	O		1x			1x				
5	BIO5004-20	Applied Microbiology	O		1x			1x				
5	BIO5101-20	Human Nutrition	O						1x			1x
5	PSY5007-20	Clinical Psychology	O					1x				1x
5	PPY5100-120	Professional Placement Year	O		1x		1x					
6	BIO6700-20	BMS Dissertation Planning	C		1x		1x					
6	BIO6701-20	BMS Dissertation Publication	C					1x			1x	
6	BIO6702-20	Clinical Biochemistry	C		1x							1x
6	BIO6703-20	Mechanisms of Disease	C		1x			1x				
6	BIO6704-20	Applied Sport and Exercise Nutrition	O		1x							1x
6	BIO6101-20	Epidemiology & Public Health	O						1x		1x	1x
6	BIO6100-20	Food Safety	O		1x			1x				
6	PSY6107-20	Advanced Topics in Psych.	O					1x				1x

[5] C = Core; R = Required; R* = Required*; O = Optional