

Programme Specification: Undergraduate

For students starting in Academic Year 2018/2019

1. Course Summary

Names of programme(s) and award title(s)	BSc (Hons) Biomedical Science BSc (Hons) Biomedical Science with International Year (see Annex A for details) BSc (Hons) Biomedical Science with Work Placement Year BSc (Hons) Applied Biomedical Science BSc (Hons) Studies in Biomedical Sciences BSc (Hons) Studies in Biomedical Sciences with International Year BSc (Hons) Studies in Biomedical Sciences with Work Placement Year
Award type	Single Honours
Mode of study	Full time
Framework of Higher Education Qualification (FHEQ) level of final award	Level 6
Duration	3 years 4 years if taken with a 46-week Life Sciences placement or Applied Biomedical Science placement, or the International Year option
Location of study	Keele University – main campus
Accreditation (if applicable)	The Biomedical Science course, with or without the International Year or Work Placement Year, is accredited by the Royal Society of Biology and the Institute of Biomedical Science (IBMS). The Applied Biomedical Science (ABMS) course is also approved by the Health & Care Professions Council (HCPC). For further details see section 12
Regulator	Office for Students (OfS)
Tuition Fees	UK/EU students: Fee for 2018/19 is £9,250* International students: Fee for 2018/19 is £15,480**

* These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

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	<p>The fee for the international year abroad is calculated at 15% of the standard year fee</p> <p>The fee for the placement year is calculated at 20% of the standard year fee</p>
Additional Costs	Refer to section 18

How this information might change: Please read the important information at <http://www.keele.ac.uk/student-agreement/>. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.

2. What is a Single Honours programme?

The Single Honours programme described in this document allows you to focus more or less exclusively on Biomedical Science. In keeping with Keele's commitment to breadth in the curriculum, the programme also gives you the opportunity to take some modules outside Biomedical Science, in other disciplines and in modern foreign languages as part of a 360-credit Honours degree. Thus it enables you to gain, and be able to demonstrate, a distinctive range of graduate attributes.

3. Overview of the Programme

Biomedical Science (BMS) is taken as a Single Honours course for all years of study. Biomedical Science is a blend of those sciences that contribute to medical research and understanding of disease. Biomedical Science students need to be able to integrate concepts from many branches of biology in order to understand the diagnosis and treatment of human diseases. These areas of biology include human physiology, biochemistry, pathology, immunology, neuroscience and molecular and cell biology. In order to fulfil these requirements and thereby provide a multidisciplinary learning environment experienced by all students at Keele, the course is delivered by staff from many disciplines within the School of Life Sciences, in collaboration with the School of Pharmacy, the School of Medicine and the University Hospitals of North Midlands NHS Trust. The programme includes the opportunity to graduate with an Applied Biomedical Science (ABMS) degree, which incorporates a clinical placement leading to the opportunity to complete the Health and Care Professions Council (HCPC) Standards of Proficiency for Biomedical Scientists. The Biomedical Science course is Institute of Biomedical Science (IBMS)-accredited and the ABMS course is both HCPC-approved and IBMS-accredited. Both courses are accredited by the Royal Society of Biology. Successful ABMS students are eligible to apply for registration with the HCPC and also receive the IBMS Certificate of Competence, making them eligible for Licentiate membership of the IBMS.

Throughout this document, the term 'Biomedical Science' is used to refer to both BMS and ABMS routes, unless specifically indicated otherwise.

The Programme provides a broad and varied coverage of modern biochemistry and cell biology with emphasis on the biochemical and molecular aspects of health and disease. Staff provide a friendly and supportive environment.

Training is also provided in the employability skills that will help you to reach your potential in your chosen career. Distinctive features of this programme are:

- The course is accredited by the Institute of Biomedical Science (IBMS) and the Royal Society of Biology.
- The course draws on the resources and expertise of external practitioners from the Royal Stoke University Hospital's Pathology Department and takes an integrated approach to studying the disease process from a biomedical practitioner's perspective.
- Students may undertake a Life Sciences placement year between their second and third years at Keele.

- Students may undertake an international year between their second and third years at Keele (see Annex A for criteria and details). This option is accredited by the Royal Society of Biology and the Institute of Biomedical Science.
- Students may study abroad at a partner university for one semester in year 2. N.B. this option is NOT accredited by the Royal Society of Biology or the Institute of Biomedical Science and will result in an award of Studies in Biomedical Sciences.
- Students may, at the end of their first year, apply for transfer to Applied Biomedical Science, a Health and Care Professions Council (HCPC)-approved route incorporating integrated training and hospital laboratory placements (subject to placement availability and a competitive selection process). Successful Applied Biomedical Science graduates will have met the HCPC Standards of Proficiency for Biomedical Scientists and will have the qualifications necessary for eligibility to register with the HCPC.

4. Aims of the Programme

The broad aims of the programme are to:

- provide you with core knowledge, understanding and skills relevant to Biomedical Science;
- provide an appropriate qualification for a career as a Biomedical Scientist;
- produce skilled and motivated graduates who are suitably prepared for further study or for employment within or outside their field;
- cultivate interest in the biosciences, particularly at the cellular and molecular level, within a caring and intellectually stimulating environment;
- promote the development of a range of employability skills, for use in all areas where numeracy and an objective, scientific approach to problem-solving are valued;
- promote the development of independent research skills to enable you to undertake relevant postgraduate study.

5. What you will learn

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding
- Subject specific skills
- Intellectual skills
- Key or transferable skills (including employability skills)

Subject knowledge and understanding

Successful students will be able to:

- U1 at Level 4, demonstrate knowledge and understanding of biological science core topics, underpinning biomedical science, including anatomy, molecular biology and molecular genetics; biochemistry including macromolecular structure and function, enzymes and catalysis, metabolism and its control, cell biology, cell signalling, membranes and transport; human physiology and pathology
- U2 at Level 4, demonstrate knowledge and understanding of key subjects in biomedical science including: cellular pathology including histology and cytology, clinical biochemistry, immunology and microbiology, haematology and blood transfusion science
- U3 at Level 5, demonstrate knowledge and understanding of core topics listed in U1 and U2 and also including biotechnology, information technology and structural and cellular immunology

- U4 at Level 6, demonstrate knowledge and understanding of selected areas of the core curriculum listed in U1-U3 and including biology of disease and acquisition, analysis and communication of information
- U5 be able to integrate knowledge of the core science and specialist subject areas through study of the biology of disease
- U6 demonstrate knowledge and understanding of the methods by which biomedical data are obtained, including analytical and preparative laboratory techniques
- U7 be able to demonstrate the ability to mine, manipulate and interpret data from small molecule and macromolecular databases
- U8 demonstrate a critical understanding of the scientific method, formulation and testing of hypotheses and understanding that scientific knowledge is complex, contested and subject to continuous advance
- U9 use appropriately the terminology and nomenclature of the discipline
- U10 be aware of current developments in Biomedical Science including areas of ethical or public concern
- U11 develop an appreciation of the interdisciplinary nature of science and of the validity of different points of view

Subject specific skills

Successful students will be able to:

- P1 use a range of laboratory techniques for the acquisition and analysis of information relevant to the subject
- P2 design, conduct, analyse, report and evaluate biomedical experiments
- P3 work safely and responsibly in the laboratory with awareness of standard procedures, COSHH and good laboratory practice (GLP)
- P4 apply biomedical understanding to familiar and unfamiliar problems
- P5 apply scientific method, planning and analytical skills to carry out a research project
- P6 recognise philosophical and ethical issues relevant to the subject
- P7 Applied Biomedical Science students will be able to demonstrate competence in all the Health Professions Council Standards of Proficiency for Biomedical Scientists

Intellectual skills

Successful students will be able to:

- I1 assess the merits of contrasting theories and explanations and develop reasoned arguments
- I2 identify, analyse and solve problems, whether familiar or unfamiliar, individually and/or co-operatively
- I3 make reasoned decisions
- I4 evaluate evidence and make critical judgements
- I5 abstract and synthesise information and make critical interpretations of data and text
- I6 take responsibility for their own learning and reflect upon that learning

- I7 construct grammatically correct documents in an appropriate academic style, using and referencing relevant ideas and evidence
- I8 understand the importance of academic and research integrity

Key or transferable skills (including employability skills)

Successful students will be able to:

- E1 develop and sustain effective approaches to learning and study, including time management, flexibility, creativity and intellectual integrity
- E2 acquire, analyse, synthesise, summarise and present information and ideas from a wide range of sources: textual, numerical, verbal and graphical
- E3 prepare, process and present data using appropriate qualitative and quantitative techniques: statistical programmes, spreadsheets and programmes for presenting data visually
- E4 use the Internet and other electronic resources, effectively and critically, as a means of communication and a source of information
- E5 communicate effectively by written, spoken and graphical means using appropriate techniques and scientific language
- E6 work with others to identify and achieve collaborative goals and responsibilities and perform in a respectful manner that is accepting of the viewpoints and opinions of others
- E7 develop skills necessary for self-managed and lifelong learning, including working independently, organisational, enterprise and knowledge transfer skills
- E8 motivate themselves and sustain that motivation over an extended period of time
- E9 cite and reference work in an appropriate manner, ensuring academic integrity and the avoidance of plagiarism, whether intentional or not

Keele Graduate attributes

Engagement with this programme will enable you to develop your intellectual, personal and professional capabilities. At Keele, we call these our ten Graduate Attributes and they include independent thinking, synthesizing information, creative problem solving, communicating clearly, and appreciating the social, environmental and global implications of your studies and activities. Our educational programme and learning environment is designed to help you to become a well-rounded graduate who is capable of making a positive and valued contribution in a complex and rapidly changing world, whichever spheres of life you engage in after your studies are completed.

Further information about the Keele Graduate Attributes can be found here: <http://www.keele.ac.uk/journey/>

6. How is the Programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- **Traditional lectures** where the lecturer provides students with a framework for reading and independent study. Some lecture and practical classes will be taught by practising Biomedical Scientists from local Pathology Departments
- **Interactive learning** in large classes where students have the opportunity to work together in smaller groups, interact with the lecturer and reflect on their own learning. Interactive lectures may involve the use of voting systems or involve students in answering quick quizzes

- **Practicals** in laboratories are particularly important and involve gaining skills in modern biochemical and medical laboratory techniques and provide training in a wide range of research techniques
- **Tutorials** and seminars in small groups of students where key issues can be discussed in more depth. Students are expected to play a full part and, occasionally, to lead these discussions. In particular, Problem Based Learning (PBL) is the student-centred learning style, using clinical scenarios, for at least two modules and is incorporated into other modules across the three years of study. Some tutorials and seminars consist largely of student presentations
- **Independent study** based on directed reading from textbooks, research papers and research reviews
- **Web-based learning** using the University's virtual learning environment (KLE). The KLE is used to give students easy access to a wide range of resources and research tools, and as a platform for online discussions and quizzes
- In the **dissertation** module, Biology of Disease, taken in their final year, the opportunity to undertake a piece of independent study, with generic support provided through tutorials
- The opportunity to undertake a piece of **independent experimental research** supervised and supported by a member of staff and usually within a research group
- Students on the Applied Biomedical Science route will have the opportunity to undertake a **clinical placement** between Levels 5 & 6 and to attempt completion of the HCPC Standards of Proficiency for Biomedical Science, through the ABMS Placement Portfolio

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Personal Tutors or module lecturers on a one-to-one basis.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways. For example:

- **Lectures** and independent study allow students to gain knowledge and understanding of cellular processes and the complexity of biochemical processes
- **Seminars, tutorials and online discussions** provide opportunities for students to ask questions about, and suggest answers to, biomedical questions and to present their own ideas to members of staff and other students using an appropriate medium of communication
- **Interactive lectures, seminars, tutorials and web-based activities** encourage students to reflect on their own learning and take responsibility for its development by addressing areas of difficulty, perhaps by discussing them with their fellow students or by getting additional help from a member of staff
- **Laboratory practicals** allow students to generate, analyse and interpret experimental data and to use a range of techniques relevant to the study of modern biochemistry and medical laboratory sciences
- Undertaking an **experimental project** with the support of an experienced researcher allows students to formulate relevant research questions and devise, carry out and analyse experiments to answer them

7. Teaching Staff

The teaching staff are mainly from the School of Life Sciences (<https://www.keele.ac.uk/lifesci/people/>). Teaching staff from the School of Pharmacy, School of Medicine and the University Hospitals of North Midlands NHS Trust also contribute to the Programme. Most staff are active in bioscience research and qualified to PhD level or equivalent professional level. As part of probationary requirements, new staff must complete a postgraduate certificate in teaching at HE level, which is recognised by SEDA. Several Life Sciences' staff members have been awarded Keele's prestigious Excellence in Teaching and Learning awards and several were awarded a KeeleSU Education Award for personal tutoring. There is a growing culture of higher education research and several members of staff are active in this field, with members of staff having already completed an

MA in Teaching and Learning and several others in the process of doing so. In recent years several teaching innovation projects have been run by Life Sciences staff and several new projects have been proposed. Members of the School of Life Sciences hold recognised or accredited teaching qualifications and a number are Fellows or Associates of the Higher Education Academy (HEA) and a number are Senior Fellows of the HEA. A number of members of staff are HCPC-registered Biomedical Scientists. Additionally, we draw on expertise of Pathology practitioners from local hospitals, particularly Royal Stoke University Hospital, to deliver certain Pathology-specific elements of the programme.

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

8. What is the Structure of the Programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from course to course, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April.

Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are three types of module delivered as part of your programme. They are:

- Compulsory modules – a module that you are required to study on this course;
- Optional modules – these allow you some limited choice of what to study from a list of modules;
- Elective modules – a free choice of modules that count towards the overall credit requirement but not the number of subject-related credits.

A summary of the credit requirements per year is as follows, with a minimum of 90 subject credits (compulsory plus optional) required for each year.

Year	Compulsory	Optional		Electives	
		Min	Max	Min	Max
1	120	0	0	0	0
2	90	15	30	0	15
3	60	60	60	0	0

Module lists

Year 1 (Level 4)

Compulsory modules	Credits	Optional modules	Credits
Biochemistry	30	None	
Molecular Cell Biology	30		
Physiology and Anatomy	30		
Clinical Applications of Biomedical Science I	30		

Year 2 (Level 5)

Compulsory modules	Credits	Optional modules	Credits
		<i>N.B. Students choose 2 modules from the</i>	

		<i>optional choices or 1 optional module and one elective module</i>	
Clinical Applications of Biomedical Science II	30	Human Genetics	15
Molecular, Cellular & Structural Immunology	15	Microbes, Viruses & Parasites	15
Gene & Protein Engineering	15	Cell Signalling	15
Research and Analytical Skills	15	Professional Relationships	15
Metabolism in Health & Disease	15		

NB: Students opting to study abroad for one semester (as opposed to the International Year option) may undertake Study Abroad in only one of the semesters of Level 5. The required modules must be selected from the relevant semester of study abroad. If a student elects to undertake the semester-long Study Abroad option, the degree award will be 'Studies in Biomedical Sciences'; the degree will NOT be accredited by the IBMS and therefore will not fulfil the required academic qualification for eligibility for HCPC registration as a Biomedical Scientist. The year-long International Year option is Royal Society of Biology- and IBMS-accredited.

Year 3 (Level 6)

Compulsory modules	Credits	Optional modules <i>N.B. Students choose 4 modules from the optional choices</i>	Credits
Biology of Disease	15	Structural Biology & Macromolecular Function	15
Bioinformatics & Science Communication	15	Brain Disease	15
<i>30 credits of Independent study modules must also be selected:</i>		Advances in Medicine	15
Life Sciences Double Experimental Project (with research skills assessment)	30	Human Parasitology	15
		Case Studies in Biomedical Science	15
		Clinical Pathology	15
OR		Applied Regenerative Medicine	15
		Biomedical Engineering	15
Double Applied Life Sciences Placement*	30	Cancer Biology	15

* The Double Applied Life Sciences Placement module may replace Life Sciences Double Experimental Project (with research skills assessment) if the nature of the placement is deemed suitable and the work carried out meets the criteria of the research project module.

Applied Biomedical Science students must achieve a pass grade for the Double Applied Biomedical Science Placement module. If this module is failed, the student will revert to the Biomedical Science route or Studies in Biomedical Sciences award, if all of the requirements of the Biomedical Science award are not met (i.e. if a mark of less than 40% is achieved: see Course Regulation 11.9). In this case, the mark for the Double Applied Biomedical Science Placement module will be substituted *in lieu* of the Life Sciences Double Experimental Project (with research skills assessment) module.

For further information on the content of modules currently offered, including the list of elective modules, please visit: www.keele.ac.uk/recordsandexams/az

Alternative Levels 5 and 6, leading to award of Applied Biomedical Science (ABMS)

Compulsory Core modules	Credits	Optional modules <i>NB: students choose 1 module from the optional choices</i>	Credits
Clinical Applications of Biomedical Science II	30	Human Genetics	15
Molecular, Cellular & Structural Immunology	15	Microbes, Viruses & Parasites	15
Gene & Protein Engineering	15	Cell Signalling	15
Research and Analytical Skills	15		
Metabolism in Health & Disease	15		
Professional Relationships	15		

Year 3 (Level 6)

Compulsory Core modules	Credits	Optional modules <i>NB: students choose 3 modules from the optional choices</i>	Credits
Biology of Disease	15	Structural Biology & Macromolecular Function	15
Bioinformatics & Science Communication	15	Brain Disease	15
Case Studies in Biomedical Science	15	Advances in Medicine	15
Double Applied Biomedical Science Placement*	30	Human Parasitology	15
		Clinical Pathology	15
		Applied Regenerative Medicine	15
		Biomedical Engineering	15
		Cancer Biology	15

* Applied Biomedical Science students must achieve a pass grade for the Double Applied Biomedical Science Placement module. If this module is failed, the student will revert to the Biomedical Science route or Studies in Biomedical Sciences award, if all of the requirements of the Biomedical Science award are not met (i.e. if a mark of less than 40% is achieved: see Regulation 11.9). In this case, the mark for the Double Applied Biomedical Science Placement module will be substituted *in lieu* of the Life Sciences Double Experimental Project (with research skills assessment) module.

Learning Outcomes

The table below sets out what students learn in each year of the Programme, the modules in which that learning takes place, and the main ways in which students are assessed on their learning. In Year 1 (Level 4) and Year 2 (Level 5) these learning outcomes are achieved in the compulsory modules which all students are required to take. Some of these outcomes may also be achieved or reinforced in elective modules together with other outcomes not stated here. In Year 3 (Level 6) the stated outcomes are achieved by taking any of the modules offered in each semester.

Year 1 (Level 4)

Subject Knowledge and Understanding		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
U1 demonstrate knowledge and understanding of biological science core topics, underpinning biomedical science, including anatomy, molecular biology and molecular genetics; biochemistry including macromolecular structure and function, enzymes and catalysis, metabolism and its control, cell biology, cell signalling, membranes and transport; human physiology and pathology	All modules	All assessments, including essays, laboratory reports, case reports, class tests, exams
U2 demonstrate knowledge and understanding of key subjects in biomedical science including cellular pathology including histology and cytology, clinical biochemistry, immunology and microbiology, haematology and blood transfusion science	Clinical Applications in Biomedical Science I	All assessments

U6 demonstrate knowledge and understanding of the methods by which biomedical data are obtained, including analytical and preparative laboratory techniques	All modules, particularly those with practical classes	Laboratory reports
U8 demonstrate knowledge and understanding of the scientific method, formulation and testing of hypotheses and understanding that scientific knowledge is complex, contested and subject to continuous advance	All modules, particularly those with practical classes	Laboratory reports
U9 use appropriately the terminology and nomenclature of the discipline	All modules	All assessments

Subject Specific Skills		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
P1 use a range of laboratory techniques for the acquisition and analysis of information relevant to the subject	All modules with practical sessions	Laboratory reports
P2 design, conduct, analyse, report and evaluate biomedical experiments	All modules with practical sessions	Laboratory reports
P3 work safely and responsibly in the laboratory with awareness of standard procedures, COSHH and good laboratory practice (GLP)	All modules with practical sessions	Laboratory reports
P4 apply biomedical understanding to familiar and unfamiliar problems	All modules	Laboratory reports, case reports, data analysis workshops
P6 recognise philosophical and ethical issues relevant to the subject	All modules, particularly Clinical Applications of Biomedical Science I	Essays, case reports, examinations
I2 identify, analyse and solve problems, whether familiar or unfamiliar, individually and/or co-operatively	All modules with practical sessions, Clinical Applications of Biomedical Science I	Laboratory reports, case reports, essays
I3 make reasoned decisions	All modules	Essays, case reports
I5 abstract and synthesise information and make critical interpretations of data and text	All modules with practical sessions, Clinical Applications of Biomedical Science I	Laboratory reports, case reports
I6 take responsibility for their own learning and reflect upon that learning	All modules, particularly Clinical Applications of Biomedical Science I	Essays, Personal Development Planning
I7 Construct grammatically correct documents in an appropriate academic style, using and referencing relevant ideas and evidence	All modules where there are written assessments	All assessments
I8 Understand the importance of academic	All modules especially those	All written work especially lab

and research integrity	with associated laboratory work	reports
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Key or Transferable Skills (graduate attributes)		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
E1 develop and sustain effective approaches to learning and study, including time management, flexibility, creativity and intellectual integrity	All modules	All assessments, particularly critical reflection
E2 acquire, analyse, synthesise, summarise and present information and ideas from a wide range of sources: textual, numerical, verbal and graphical	All modules, particularly Clinical Applications of Biomedical Science I	Essays, case reports, lab reports
E3 Prepare, process and present data using appropriate qualitative and quantitative techniques: statistical programmes, spreadsheets and programmes for presenting data visually	All modules with practical sessions	Laboratory reports
E4 use the internet and other electronic sources, effectively and critically, as a means of communication and a source of information	All modules, particularly Clinical Applications of Biomedical Science I	Tutorial engagement
E5 communicate effectively by written, spoken and graphical means using appropriate techniques	All modules	Essays, reports, presentations
E6 work with others to identify and achieve collaborative goals and responsibilities and perform in a respectful manner that is accepting of the viewpoints and opinions of others	Most modules will have some element of group work, particularly Clinical Applications of Biomedical Science I	Tutorial engagement
E7 develop skills necessary for self-managed and lifelong learning, including working independently, organisational, enterprise and knowledge transfer skills	All modules, particularly Clinical Applications of Biomedical Science I	Portfolio
E9 Cite and reference work in an appropriate manner, ensuring academic integrity and the avoidance of plagiarism whether intentional or not	All modules	All assessments where outside sources are used

Year 2 (Level 5)

Subject Knowledge and Understanding		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
U3 Demonstrate knowledge and understanding of core topics listed in U1 &	All Level 5 modules, particularly Clinical	All assessments including essays, unseen exams, data analysis,

U2 at Level 4 and also including biotechnology, information technology and structural and cellular immunology	Applications of Biomedical Science II, Research & Analytical Skills and Molecular, Cellular & Structural Immunology	laboratory reports
U5 be able to integrate knowledge of the core science and specialist subject areas through study of the biology of disease	All modules	Essays, reports, examinations
U6 demonstrate knowledge and understanding of the methods by which biomedical data are obtained, including analytical and preparative laboratory techniques	All modules, particularly those with practical classes	Essays, reports, examinations
U8 demonstrate knowledge and understanding of the scientific method, formulation and testing of hypotheses and understanding that scientific knowledge is complex, contested and subject to continuous advance	All modules, particularly those with practical classes	Essays, reports, examinations
U9 use appropriately the terminology and nomenclature of the discipline	All modules	All assessments
U10 be aware of current developments in Biomedical Science including areas of ethical or public concern	All modules, particularly Clinical Applications of Biomedical Science II and Professional Relationships	Essays, reports, examinations, reflective writing
U11 develop an appreciation of the interdisciplinary nature of science and of the validity of different points of view	All modules, particularly Clinical Applications of Biomedical Science II	Essays, examinations

Subject Specific Skills		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
P1 use a range of laboratory techniques for the acquisition and analysis of information relevant to the subject	All modules with practical sessions	Laboratory reports
P2 design, conduct, analyse, report and evaluate biomedical experiments	All modules with practical sessions	Laboratory reports
P3 work safely and responsibly in the laboratory with awareness of standard procedures, COSHH and good laboratory practice (GLP)	All modules with practical sessions	Laboratory reports
P4 apply biomedical understanding to familiar and unfamiliar problems	All modules	Laboratory reports, case reports, data analysis workshops
P6 recognise philosophical and ethical issues relevant to the subject	All modules, particularly Clinical Applications of Biomedical Science II and Professional Relationships	Essays, case reports, examinations, reflective writing

12 identify, analyse and solve problems, whether familiar or unfamiliar, individually and/or co-operatively	All modules with practical sessions, Clinical Applications of Biomedical Science II	Laboratory reports, case reports, essays
13 make reasoned decisions	All modules	Essays, case reports
14 evaluate evidence and make critical judgements	Research and Analytical Skills	Data analysis exercises
15 abstract and synthesise information and make critical interpretations of data and text	All modules with practical sessions, Clinical Applications of Biomedical Science II	Laboratory reports, case reports
16 take responsibility for their own learning and reflect upon that learning	All modules, particularly Clinical Applications of Biomedical Science II	Essays, reflective writing, Personal Development Planning
17 Construct grammatically correct documents in an appropriate academic style, using and referencing relevant ideas and evidence	All modules where there are written assessments	All assessments
18 Understand the importance of academic and research integrity	All modules especially those with associated laboratory work	All written work especially lab reports

Key or Transferable Skills (graduate attributes)		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
E1 develop and sustain effective approaches to learning and study, including time management, flexibility, creativity and intellectual integrity	All modules	All assessments, particularly critical reflection
E2 acquire, analyse, synthesise, summarise and present information and ideas from a wide range of sources: textual, numerical, verbal and graphical	All modules	Essays, case reports, lab reports
E3 Prepare, process and present data using appropriate qualitative and quantitative techniques: statistical programmes, spreadsheets and programmes for presenting data visually	All modules with practical sessions	Laboratory reports
E4 use the internet and other electronic sources, effectively and critically, as a means of communication and a source of information	All module, particularly Research & Analytical Skills	Presentations, data analysis exercises
E5 communicate effectively by written, spoken and graphical means using appropriate techniques	All modules	Essays, reports, presentations, reflective writing
E6 work with others to identify and achieve collaborative goals and	Most modules will have some element of group work,	Group poster presentation, group report

responsibilities and perform in a respectful manner that is accepting of the viewpoints and opinions of others	particularly Professional Relationships	
E7 develop skills necessary for self-managed and lifelong learning, including working independently, organisational, enterprise and knowledge transfer skills	All modules, particularly Professional Relationships, Research & Analytical Skills	Reflective writing, essays
E9 Cite and reference work in an appropriate manner, ensuring academic integrity and the avoidance of plagiarism whether intentional or not	All modules	All assessments where outside sources are used

Year 3 (Level 6)

Subject Knowledge and Understanding		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
U4 Demonstrate knowledge and understanding of selected areas of the core curriculum listed in U1-3 at Level 4 and 5 and including biology of disease and acquisition, analysis and communication of information	All modules, particularly Biology of Disease and Bioinformatics & Science Communication	All assessments including extended essay, poster and reports
U5 Be able to integrate knowledge of the core science and specialist subject areas through study of the biology of disease	All modules	Essays, reports, examinations, project reports, dissertations, portfolio
U6 Demonstrate knowledge and understanding of the methods by which biomedical data are obtained, including analytical and preparative laboratory techniques	All modules	Essays, examinations, project reports, dissertations, portfolio
U7 Be able to demonstrate the ability to mine, manipulate and interpret data from small molecule and macromolecular databases	Bioinformatics & Science Communication	Bioinformatics report
U8 demonstrate knowledge and understanding of the scientific method, formulation and testing of hypotheses and understanding that scientific knowledge is complex, contested and subject to continuous advance	All modules, particularly project/placement modules	Essays, reports, examinations, project reports, dissertations
U9 use appropriately the terminology and nomenclature of the discipline	All modules	All assessments
U10 be aware of current developments in Biomedical Science including areas of ethical or public concern	All modules	Essays, reports, examinations, project reports, portfolio
U11 develop an appreciation of the interdisciplinary nature of science and of	All modules	Literature reviews, project reports

the validity of different points of view		
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Subject Specific Skills		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
P1 use a range of laboratory techniques for the acquisition and analysis of information relevant to the subject	Project/placement modules	Project reports, portfolio
P2 design, conduct, analyse, report and evaluate biomedical experiments	Project/placement modules	Project reports, portfolio
P3 work safely and responsibly in the laboratory with awareness of standard procedures, COSHH and good laboratory practice (GLP)	Project/placement modules	Project reports, portfolio
P4 apply biomedical understanding to familiar and unfamiliar problems	All modules	Project reports, dissertations, portfolio
P5 apply scientific method, planning and analytical skills to carry out a research project	Project/placement modules	Project reports, portfolio
P6 recognise philosophical and ethical issues relevant to the subject	All modules, Case Studies in Biomedical Science	Essays, examinations, project reports, dissertations, , poster presentation, portfolio
P7 Applied Biomedical Science students will be able to demonstrate competence in all the Health and Care Professions Council Standards of Proficiency for Biomedical Scientists	Double ABMS Placement	ABMS Placement Portfolio
I1 assess the merits of contrasting theories and explanations and develop reasoned arguments	All modules	Essays, reports, examinations, project reports, dissertations
I2 identify, analyse and solve problems, whether familiar or unfamiliar, individually and/or co-operatively	Project/placement modules, Biology of Disease, Case Studies in Biomedical Science	Project reports, dissertations, essays, poster presentation
I3 make reasoned decisions	All modules	Essays, project reports, dissertations, portfolio
I4 evaluate evidence and make critical judgements	All modules, particularly project/placement modules, Dissertation, Double ABMS Placement	Essays, project reports, dissertations, portfolio
I5 abstract and synthesise information and make critical interpretation of data and text	All modules, particularly project/placement modules, Dissertation, Double ABMS Placement	Essays, project reports, dissertations, portfolio
I6 take responsibility for their own learning and reflect upon that learning	Project/placement modules, double ABMS placement	Essays, project reports, dissertations, portfolio,

		laboratory performance, Personal Development Planning
17 Construct grammatically correct documents in an appropriate academic style, using and referencing relevant ideas and evidence	All modules where there are written assessments	All assessments
18 Understand the importance of academic and research integrity	All modules especially those with associated laboratory work	All written work especially reports

Key or Transferable Skills (graduate attributes)		
Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<i>Successful students will be able to:</i>		
E1 develop and sustain effective approaches to learning and study, including time management, flexibility, creativity and intellectual integrity	All modules	All assessments, particularly critical reflection
E2 acquire, analyse, synthesise, summarise and present information and ideas from a wide range of sources: textual, numerical, verbal and graphical	All modules, Case Studies in Biomedical Science, project/placement modules Biology of Disease, Double ABMS Placement	Essays, dissertations, portfolio, poster presentations
E3 Prepare, process and present data using appropriate qualitative and quantitative techniques: statistical programmes, spreadsheets and programmes for presenting data visually	Project/placement modules, Double ABMS Placement	Project reports, portfolio
E4 use the internet and other electronic sources, effectively and critically, as a means of communication and a source of information	All modules, particularly project/placement modules, Double ABMS Placement	Presentations, project reports, portfolio
E5 communicate effectively by written, spoken and graphical means using appropriate techniques	All modules	Essays, reports, presentations, project reports, dissertations, reflective writing, portfolio
E6 work with others to identify and achieve collaborative goals and responsibilities and perform in a respectful manner that is accepting of the viewpoints and opinions of others	Modules with some element of group work, particularly Case Studies in Biomedical Science, ABMS Placement	Portfolio
E7 develop skills necessary for self-managed and lifelong learning, including working independently, organisational, enterprise and knowledge transfer skills	All modules, Biology of Disease, Case Studies in Biomedical Science, Double ABMS Placement	Essays, dissertations, project reports, portfolio, critical reflection
E8 motivate themselves and sustain that motivation over an extended period of time	All modules, particularly Biology of Disease, project/placement modules, Double ABMS Placement	Laboratory performance, dissertation, experimental project, portfolio

E9 Cite and reference work in an appropriate manner, ensuring academic integrity and the avoidance of plagiarism whether intentional or not	All modules	All assessments where outside sources are used
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9. Final and intermediate awards

Credits required for each level of academic award are as follows:

Honours Degree	360 credits	You will require at least 120 credits at levels 4, 5 and 6 You must accumulate at least 270 credits in Biomedical Science or Applied Biomedical Science (out of 360 credits overall), with at least 90 credits in each of the three years of study, to graduate with a named single honours degree in Biomedical Science or Applied Biomedical Science. N.B. The award will be 'Studies in Biomedical Science' if the Study Abroad option is taken and/or if a pass standard is not achieved in the Level 6 Double Experimental Project module or Double Applied Life Sciences Placement module (see Section 13; regulations 1, 2 and 11). A 'Studies in Biomedical Science' degree is not accredited by the Institute of Biomedical Science or Royal Society of Biology.
Diploma in Higher Education	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
Certificate in Higher Education	120 credits	You will require at least 120 credits at level 4 or higher

Biomedical Science with International Year: in addition to the above students must pass a module covering the international year in order to graduate with a named degree in Biomedical Science with international year. Students who do not complete, or fail the international year, will be transferred to the three-year Biomedical Science programme.

Biomedical Science with Work Placement Year: in addition to the above students must pass a non-credit bearing module covering the work placement year in order to graduate with a named degree in Biomedical Science with Work Placement year. Students who do not complete, or fail the placement year, will be transferred to the three-year Biomedical Science programme.

10. How is the Programme assessed?

The wide variety of assessment methods used within Biomedical Science at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used within Biomedical Science:

- **Unseen examinations** in different formats test students' knowledge and understanding of biomedical science. Examinations may consist of essay, short answer and/or multiple choice questions
- **Essays**, including those based on case study material, also test the quality and application of subject knowledge. In addition, they allow students to demonstrate their ability to carry out basic bibliographic

research and to communicate their ideas effectively in writing in an appropriate scholarly style using the Harvard system of referencing

- **Class tests** taken either conventionally or online via the Keele Learning Environment (KLE) assess students' subject knowledge and their ability to apply it in a more structured and focused way
- **Computer exercises** might include contributing to wikis or blogs or using bioinformatics tools
- **Group activities** might include working on a collaborative project such as compiling a book chapter
- **Dissertations** are critical reviews of other scholars' work and test students' ability to identify and summarise the key points of a text and to evaluate the quality of arguments and the evidence used to support them. In the case of work based on empirical research, reviews also assess students' knowledge of research methodologies and their ability to make critical judgements about the appropriateness of different strategies for collecting and analysing data
- **Experimental projects** test students' knowledge of research methodologies and their ability to carry them out. They also enable students to demonstrate their ability to formulate research questions, design experiments, carry them out and analyse the results
- **Laboratory reports** are formal summaries of work carried out in the laboratory, presenting analysed data and conclusions. They test a range of practical laboratory skills and the ability to collect analyse and present data
- **Oral and poster presentations and reports** assess students' subject knowledge and understanding. They also test their ability to work effectively as members of a team, to communicate what they know orally and visually, and to reflect on these processes as part of their own personal development
- **Portfolios** consist of a number of different pieces of work, such as witness statements, annotated laboratory protocols or data, examples of in-course assessment, that together provide evidence to support the achievement of the intended learning outcomes. Generally, they require some evidence of critical reflection on the development of the students' own learning
- **Critical reflection** is an increasingly important skill, used more and more in the workplace, particularly the health care professions, to underpin Continuing Professional Development (CPD). It strengthens individuals' abilities to learn from experience by requiring them to think carefully and write about what and how they have learnt in a given experience, and how it would inform their future practice

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions.

11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year/stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project

supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity	Year 1 (Level 4)	Year 2 (Level 5)	Year 3 (Level 6)
Scheduled learning and teaching activities	27%	24%	12%
Guided independent Study	73%	76%	88%
Placements	0%	0%	0%

12. Accreditation

The programme includes the opportunity to graduate with an Applied Biomedical Science (ABMS) degree, which incorporates a clinical placement leading to the completion of the Health and Care Professions Council (HCPC) Standards of Proficiency for Biomedical Scientists.

All routes through the programme except for Studies in Biomedical Sciences, with or without Work Placement or International Year, are accredited by the Royal Society of Biology and the Institute of Biomedical Science (IBMS). The ABMS course is also approved by the Health & Care Professions Council (HCPC). Successful ABMS students are eligible to apply for registration with the HCPC and also receive the IBMS Certificate of Competence, making them eligible for Licentiate membership of the IBMS.

Please note the following:

- Module Attainment:** Students should note that to be awarded IBMS and Royal Society of Biology accreditation they must achieve a minimum standard of 40% in the Life Sciences Double Experimental Project with research skills assessment (or equivalent placement module). For an HCPC-approved ABMS award, students must pass all assessment elements of the Double Applied Biomedical Science Placement module including the portfolio.
- Regulations:** Your programme has professional accreditation and there are specific regulations, which you have to agree to abide by, as detailed in Annex B.
- Study abroad (one semester only):** Because studying abroad has implications for IBMS accreditation of the Biomedical Science degree (students taking Study Abroad are not eligible for an IBMS-accredited degree) students wishing to Study Abroad must discuss this in advance with the School of Life Sciences 'Study Abroad tutor' and the Biomedical Science Programme Director.

13. Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: <http://www.keele.ac.uk/student-agreement/>

Course Regulations

The Biomedical Science programme and the Applied Biomedical Science programme are subject to regulations that are required for their accreditation by the Institute of Biomedical Science (IBMS); the Applied Biomedical Science is also subject to regulations required by the Health and Care Professions Council (HCPC). These are detailed below.

A student who has completed a semester abroad will not normally be eligible to transfer onto the International Year option.

Regulations applying to Biomedical Science

- If the semester-long Study Abroad option is taken, the degree award will be '*Studies in Biomedical Sciences*', the degree will NOT be accredited by the IBMS and therefore will not fulfil the required academic qualification for HCPC registration as a Biomedical Scientist.

2. Students must achieve a pass standard in the Life Sciences Double Experimental Project with research skills assessment (or, subject to agreement, Double Applied Life Sciences Placement) to attain an accredited Biomedical Science degree. For students who do not fulfil the conditions of this regulation, the degree award will be '*Studies in Biomedical Sciences*', the degree will NOT be accredited by the IBMS and therefore will not fulfil the required academic qualification for eligibility for HCPC registration as a Biomedical Scientist. The degree award of '*Studies in Biomedical Sciences*' is not accredited by the Royal Society of Biology.

Regulations applying to Biomedical Science and Applied Biomedical Science

3. Attendance at tutorials, seminars, workshops and laboratory sessions on this programme is compulsory. Failure to attend a class without good cause will result in an informal warning. Failure to attend any subsequent classes without good cause will lead to the issuing of a formal University warning in accordance with Regulation 1A9 and could result in the requirement to withdraw from the university. Attendance at lectures is expected, but is not compulsory. Applied Biomedical Science students should note that certain components of their portfolio may not be achievable if they have not attended particular sessions, including lectures. Attendance at these sessions will be recorded.
4. Self-certification of illness as a reason for absence from compulsory classes will be accepted for no more than two periods of absence, each covering no more than 7 days, per semester. Any subsequent absence for reasons of illness must be accompanied by a doctor's note.
5. The Applied Life Sciences placement is open to Biomedical Science students who have successfully progressed from Level 5 to Level 6 and who have not opted to take Applied Biomedical Science. Students applying for placements at National Health Service institutions may be asked to disclose any criminal convictions, police cautions, charges or court cases, whether previous, including those considered 'spent', pending or which may arise during the course of the placement period. Failure to disclose any such information could result in dismissal from their placement and/or disciplinary action. Applied Biomedical Science students who do not fulfil the conditions of this regulation satisfactorily, with respect to their Applied Biomedical Science placement, will revert to the Biomedical Science route.
6. **Laboratory, lecture and tutorial classes**
 - 6.1 Wearing a laboratory coat is compulsory in all laboratories. Students will not be allowed to attend the laboratory class without a laboratory coat.
 - 6.2 Students must wear appropriate clothing in the laboratories, including sensible footwear. Closed shoes and low heels should be worn. This is to avoid tripping and to protect the feet in the case of spillages. Long hair must be tied back. Students who are inappropriately dressed may, at the discretion of the member of staff in charge, be excluded from the class and recorded as being absent without good cause.
 - 6.3 Students who arrive late to laboratory classes may, at the discretion of the member of staff in charge, be excluded from the class and recorded as being absent without good cause.
 - 6.4 Students who display serious misconduct in any class may, at the discretion of the member of staff in charge, be excluded from the class and recorded as being absent without good cause. Serious misconduct involves wilful damage to property, injury or threat to persons, or persistent disruption of teaching.
 - 6.5 The unauthorised use of mobile phones or headphones is not permitted in any class.
 - 6.6 Students are not permitted to record, video or photograph taught sessions or meetings with staff, except with the permission in advance of the staff concerned. Permission will be given where this is part of an approved disability adjustment. Any permission to record, video or photograph is for personal use only and all recordings, videos or photographs remain the property of the presenter and Keele University.
7. **Health and Safety:** students are required to read and follow the procedures in the School of Life Sciences Safety Handbook, which is available from the Biomedical Science Noticeboard on the KLE.

Applied Biomedical Science-specific regulations

The Applied Biomedical Science programme is subject to further criteria required by the Health and Care Professions of Council (HCPC):

8. Students on the Applied Biomedical Science programme are subject to the University Regulation on Fitness to Practise ([University Regulation 18](#)). The Terms of Reference for the Health and Conduct Committee are given in Annex B.
9. Selection criteria apply to transfer onto the Applied Biomedical Science programme from Level 4 Biomedical Science:

Successful candidates are required to:

- demonstrate a good command of reading, writing and spoken English, evidenced by their Level 4 coursework;
- progress to Level 5;
- demonstrate their aptitude for the role of Biomedical Scientist, through interviewers applying the NHS person specification for a trainee Biomedical Scientist post;
- undergo an enhanced Disclosure and Barring Service (DBS) disclosure process prior to acceptance onto the course, including any spent and unspent criminal convictions and cautions. The University follows the DBS Code of Practice (see <https://www.gov.uk/government/publications/dbs-code-of-practice>) and can provide a copy of this Code on request. Please note that having a criminal record is not necessarily a bar to obtaining a place on this course. Disclosure is mandatory but each case will be considered individually. As a guide, conviction of a criminal offence or acceptance of a police caution for any of the following types of behaviour is likely to result in serious consideration of rejection of an application for transfer onto the ABMS course:
 - Violence
 - Abuse
 - Sexual misconduct
 - Supplying drugs illegally
 - Child pornography
 - Offences involving dishonesty
 - Offences for which you received a prison sentence

This is not a full list. Applicants should also note that the NHS is exempt from certain aspects of the rehabilitation of offenders act. This means that for many appointments (including Biomedical Scientists) applicants must disclose all criminal convictions or accepted police cautions even if the offence is considered to be spent. Disclosure of a criminal record will not automatically prevent employment, each case will be considered individually;

- demonstrate that they have completed a course of Hepatitis B vaccination prior to undertaking their placement;
 - demonstrate that they have no medical/health issues that may affect their fitness to practise. This will be assessed by the University's Occupational Health department either before (if medical issues have been identified) or at the start of the programme. A health screening questionnaire must be completed by students holding a place on prior to the start of their Level 5 studies.
10. Applied Biomedical Science students must attend full-time at their allocated hospital(s) during the full period of their vacation placement periods, abide by their conditions of contract and partake fully in the provided training programme. Students who do not fulfil the conditions of this regulation satisfactorily will revert to the Biomedical Science route.

11. Applied Biomedical Science students must achieve a pass grade for the Double Applied Biomedical Science Placement module. If this module is failed, the student will revert to the Biomedical Science route (or Studies in Biomedical Sciences award, if all of the requirements of the Biomedical Science award are not met (i.e. if a mark of less than 40% is achieved: see Regulation 11.9 (see BMS-specific regulations above)). In this case, the mark for the Double Applied Biomedical Science Placement module will be substituted *in lieu* of the Life Sciences Double Experimental Project (with research skills assessment) module.
12. Students who are awarded an Applied Biomedical Science degree will have met the HCPC's Standards of Proficiency for Biomedical Scientists and will be eligible to apply for HCPC registration (subject to the conditions given in 9.11).
13. Applied Biomedical Science students must complete a course of vaccination against hepatitis B before starting their placement. Students may be required to pay the cost of this (approximately £120 in 2016).
14. Applied Biomedical Science applicants must undergo an enhanced DBS disclosure before being accepted on the ABMS route. Students may be required to pay the cost of this (£44 in 2016).
15. Students should note that an aegrotat award cannot provide eligibility for admission to the HCPC register. In addition, applicants for registration are required to provide further information to the HCPC, including a health reference from a medical practitioner (who must not be a relative) and a character reference from 'someone of professional standing in the community'. Registration is required to work as a qualified Biomedical Scientist in the NHS.
16. Applied Biomedical Science graduates will also receive the IBMS Certificate of Competence and are eligible for Licentiate Membership of the IBMS.

14. What are the typical admission requirements for the programme?

Subject	A-level	Subjects not included	International Baccalaureate	BTEC	Access to Higher Education Diploma	GCSE requirements
Biomedical Science (Single Honours)	ABB To include 2 Science A levels (Biology, Chemistry, Environmental Science, Geography, Geology, Human Biology, Maths, Physics or Psychology).	None	34 points to include two Higher Level Science subjects at 6 or above.	DDM in a Science based subject	Obtain Access to Higher Education Diploma with 30 Level 3 credits at Distinction and 15 Level 3 credits @ Merit. You must also have taken sufficient Science credits, please contact us for advice.	Maths @ C (or 4) English Lang @ C (or 4)

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University's Foundation Year Programme.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 6.0 or equivalent.

Please note: All non-native English speaking students are required to undertake a diagnostic English language assessment on arrival at Keele, to determine whether English language support may help them succeed with their studies. An English language module may be compulsory for some students during their first year at Keele.

Accreditation of Prior Learning (APL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here:

<http://www.keele.ac.uk/qa/accreditationofpriorlearning/>

Admission with advanced standing for direct entry into Level 5 is considered on an individual basis for students who have successfully completed studies equivalent to Level 4 of an IBMS-accredited Biomedical Science programme.

Students on the Applied Biomedical Science programme cannot be exempted from any module that assesses any of the HCPC's standards of proficiency.

15. How are students supported on the programme?

Support for student learning on the Programme is provided in the following ways:

- Module tutors are responsible for providing support for learning on the modules. They also give individual feedback on in-course assessments and more general feedback on examinations.
- Tutors and demonstrators provide help and advice to students in laboratory sessions and during fieldwork.
- Every student is allocated to a personal tutor who is responsible for reviewing and advising on students' academic progress in Biomedical Science.
- Personal tutors also act as a first point of contact for students on non-academic issues that may affect their learning and can refer students on to a range of specialist health, welfare and financial services coordinated by the University's Student Services.

All members of teaching staff on the Biomedical Science programme are available to see students during office hours, if available, and by appointment.

16. Learning Resources

Biomedical Science is taught in modern teaching rooms across the University, almost all of which are equipped with computers, Internet access and electronic whiteboards or projection equipment. Rooms may be arranged either in traditional lecture format or more informally to allow students to work together in small groups.

Practical sessions are held in dedicated teaching laboratories within the School of Life Sciences. These were completely refitted in 2006 at a cost of £3.3 million and have places for a total of 210 students. A new extension to the Huxley Building, with an investment of £11 million, will provide additional teaching laboratory space and is expected to be in use from the start of the 2017/18 academic year.

The learning resources available to students on the Programme include:

- The extensive collection of books and journals relevant to undergraduate study held in the University Library. Much of this material is also accessible online to Keele students from anywhere in the world with a University username and password.
- A smaller collection of biological publications and materials held in the Undergraduate Resource Room in the School of Life Sciences. The Resource Room is open at regular times during teaching periods and the resources are specifically related to the needs of students on programmes in the School of Life Sciences. There are also networked PCs available for student use and printing facilities.
- The Keele Learning Environment (KLE), which provides easy access to a wide range of learning resources including lecture notes, electronic materials available in a repository maintained by the University Library and other resources – video, audio and text-based – accessible from external providers via the Internet.

17. Other learning opportunities

Study abroad (semester)

Students on the Biomedical Science programme have the potential opportunity to spend a semester abroad in their second year studying at one of Keele's international partner universities.

Exactly which countries are available depends on the student's choice of degree subjects. An indicative list of countries is on the website (<http://www.keele.ac.uk/studyabroad/partneruniversities/>); however this does not guarantee the availability of study in a specific country as this is subject to the University's application process for studying abroad.

Individuals taking Biomedical Science should note, however, that those taking the Study Abroad option may have a limited choice of suitable overseas institutions and will graduate with an award of "Studies in Biomedical Sciences", which is not accredited by the IBMS nor the Royal Society of Biology. The Study Abroad option is not available to students on the Applied Biomedical Science route.

Because studying abroad has implications for IBMS accreditation of the Biomedical Science degree (students taking Study Abroad are not eligible for an IBMS-accredited degree) students wishing to Study Abroad must discuss this in advance with the School of Life Sciences 'Study Abroad tutor' and the Biomedical Science Programme Director.

No additional tuition fees are payable for a single semester studying abroad but students do have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad to be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination

Whilst students are studying abroad any Student Finance eligibility will continue, where applicable students may be eligible for specific travel or disability grants. Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible for income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

Study Abroad (International Year)

A summary of the International Year, which is a potential option for students after completion of year 2 (Level 5), is provided at Annex A. The Biomedical Science with International Year is accredited by the Royal Society of Biology and the Institute of Biomedical Science.

Other opportunities

In addition to the Life Sciences placement option (4 year programme) and the ABMS placement, there may be a number of opportunities open to students in the School of Life Sciences to apply for a small number of summer placements abroad (for example, Malaysia).

There are a number of schemes available, for example from the Wellcome Trust, that provide bursaries for students to gain laboratory experience in the summer vacation between their 2nd and 3rd years. Staff in Life Sciences have hosted these bursaries in the past and students who are interested can approach staff, who will have to submit an application on the students' behalf to the funding bodies (usually in January or February). Staff may also be willing to host students in their laboratories during the summer vacation on a voluntary basis.

Other learning opportunities for Biomedical Science students vary from year to year but include the opportunity to hear from, and talk to, a range of guest speakers and presenters including researchers from around the world. Some of these activities are timetabled as part of taught modules, others are organised separately but are widely advertised and undergraduate students are always welcome to attend.

18. Additional costs

Applied Biomedical Science students will incur additional costs to prepare them for their clinical placement. These costs will cover a full course of Hepatitis B vaccination and a Disclosure and Barring Services (DBS) enhanced check (2017 prices approximately £120 and £44, respectively).

These costs have been forecast by the University as accurately as possible but may be subject to change as a result of factors outside of our control (for example, increase in costs for external services). Forecast costs are reviewed on an annual basis to ensure they remain representative. Where additional costs are in direct control of the University we will ensure increases do not exceed 5%.

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation.

We do not anticipate any further costs for this undergraduate programme.

19. Quality management and enhancement

The quality and standards of learning in Biomedical Science are subject to a continuous process of monitoring, review and enhancement.

- The Learning and Teaching Committee of the School of Life Sciences is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.
- Individual modules and the Biomedical Science Programme as a whole are reviewed and enhanced every year in the annual programme review, which takes place at the end of the academic year and as part of the University's Curriculum Annual Review and Development (CARD) process.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Internal Quality Audit (IQA) process.

Student evaluation of, and feedback on, the quality of learning on every Biomedical Science module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of the Curriculum Annual Review and Development (CARD) process.
- Findings related to the Biomedical Science Programme from the annual National Student Survey (NSS), and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students in all three years of the Biomedical Science Programme is considered and acted on at regular meetings of the Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here:

<http://www.keele.ac.uk/qa/externalexaminers/currentexternalexaminers/>

20. The principles of programme design

The Biomedical Science Programme described in this document has been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

- a. UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education:
<http://www.qaa.ac.uk/quality-code>

- b. QAA Subject Benchmark Statement: Biomedical Sciences (2015)
http://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-biomedical-sciences-15.pdf?sfvrsn=3deef781_16
- c. Health and Care Professions Council Standards of Education & Training, 2014
- d. Health and Care Professions Council Standards of Proficiency – Biomedical Scientists, 2014
- e. Health and Care Professions Council Standards of Conduct, Performance & Ethics, 2016
- f. [Accreditation Guidance Documentation of the Institute of Biomedical Science](#)
- g. Keele University Regulations and Guidance for Students and Staff: <http://www.keele.ac.uk/regulations>

21. Document Version History

Date of first approved version (v1.0): 22nd September 2017

Revision history

Version number ¹	Author	Date	Summary of and rationale for changes
1.1	G Hussey	March 2019	Removed Developmental Biology as an optional module at Level 6 and replaced it with a new optional module <i>Applied Regenerative Medicine</i>

¹ 1.1, 1.2 etc. are used for minor changes and 2.0, 3.0 etc. for major changes (as defined in the University's Guidance on processes supporting curriculum changes)

Annex A

BSc (Hons) Biomedical Science with International Year

International Year Programme

Students registered for Single Honours Biomedical Science may either be admitted for or apply to transfer during their period of study at Level 5 to the Single Honours 'Biomedical Science with International Year'. Students accepted onto this programme will have an extra year of study (the International Year) at an international partner institution after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the BSc (Hons) Biomedical Science and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for 'BSc (Hons) Biomedical Science with International Year'.

International Year Programme Aims

In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with:

1. Personal development as a student and a researcher with an appreciation of the international dimension of their subject
2. Experience of a different culture, academically, professionally and socially

Entry Requirements for the International Year

Students may apply to the 4-year programme during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff.

The criteria to be applied are:

- Academic Performance (an average of 60% across all modules at Level 5 is normally required)
- General Aptitude (to be demonstrated by application for study abroad, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's personal tutor, 1st and 2nd year tutors and programme director)

Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone or Skype conversations with Study Abroad tutor, in line with recommended Personal Tutoring meeting points.
- Support from the University's Global Education Team

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

- i) Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
- ii) Discuss the benefits and challenges of global citizenship and internationalisation
- iii) Explain how their perspective on their academic discipline has been influenced by locating it within an international setting.

In addition, students who complete 'BSc (Hons) Biomedical Science with International Year' will be able to:

- iv) Use independent research skills to identify relevant information resources on a range of subjects related, or complementary, to Biomedical Science.
- v) Demonstrate the use of critical thinking skills, augmented by creativity and curiosity, in discussing the application of their International Year studies to Biomedical Science.

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

Course Regulations

Students registered for the 'BSc (Hons) Biomedical Science with International Year' are subject to the course specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise *at least 40%* in the student's discipline area.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any Biomedical Science module with significant overlap to Level 6 modules to be studied on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

Additional costs for the International Year

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

ANNEX B

School of Life Sciences

Health and Conduct Committee

Membership, Frequency, & Reporting

TITLE: School of Life Sciences Health and Conduct Committee
MEMBERSHIP: Head of School of Life Sciences or nominated representative (Chair) Plus four members nominated by the Head of School (or nominated representative) from the following: <ul style="list-style-type: none">• Applied Biomedical Science (ABMS) Course Director• ABMS placement tutor• Academic Conduct Officer• Course Director from another programme within the School• Director of Learning and Teaching• Academic staff who have undergone suitable training Chair: Head of School of Life Sciences or nominated representative Size of Committee: Chair with four others from the above list Committee members who sit on a School Conduct Committee would not subsequently sit on a Fitness to Practise Committee or a Fitness to Practise Appeal Committee pertaining to the same case.
FREQUENCY OF MEETINGS: Once per semester Extraordinary meetings to be called as necessary
ADMINISTERED BY: School of Life Sciences Administration Manager Administration Manager collates all information in regard to student conduct issues and meets with the ABMS placement tutor and course director on a monthly basis or as issues arise. The ABMS placement tutor and course director will determine the outcome of collated information.
REPORTS TO: Fitness to Practise Committee and School Learning and Teaching Committee
RECEIVES REPORTS (as required) FROM: Head of School of Life Sciences or nominated representative Director of Learning and Teaching ABMS Course Director Academic Conduct Officer / Deputy Academic Conduct Officer Members of the Academic and Academic Related Staff (Clinical) Placement Providers Student
TERMS OF REFERENCE: Attached

Terms of Reference:

It is the role of the Committee to consider the circumstances of individual student's² health and/or conduct where there is concern regarding that student's fitness to practise. In particular, it is the role of the committee to:

- Receive and consider accounts of unprofessional conduct;
- Receive and consider accounts of the health of students where there may be a risk to patients, the public, colleagues, or themselves
- Receive and consider accounts from prospective students who have made a disclosure regarding health and/ or criminal convictions

When considering accounts of unprofessional conduct particular reference will be made to the Institute of Biomedical Science's Code of Conduct

and Health Professions Council (HPC) Standards of Conduct

Matters that can be considered

- Concerns in relation to the student's fitness to practise on the grounds of health or behaviour;
- Allegations of misconduct;
- Proven cases of academic misconduct i.e. plagiarism or examination misconduct under Keele University Academic Regulation 8.12.

The following are examples of matters that may be referred for consideration:

- Conviction of a criminal offence;
- Falsification of patient or other professional records (including student records);
- Substance misuse;
- Reporting for studies / duty in an intoxicated state;
- Inappropriate or intimidating behaviour;
- Incidents of violence on or off University premises;
- Severe and relapsing mental and / or physical illness;
- Carrier of a serious communicable disease that poses a risk;
- Exploiting the vulnerability of patients or clients;
- Offences against patients, clients and / or staff;
- Proven cases of academic misconduct. All proven cases of plagiarism or examination cheating under Keele University Academic Regulation 8.12 will be referred by the School Academic Conduct Officer / Deputy Academic Conduct Officer without prejudice to the Head of School. The Head of School will then decide if the case is to proceed to the Health and Conduct Committee.
- Academic misconduct pertaining to formative work

(This list is not exhaustive.)

Procedures

The Committee's prime function is to consider evidence of a student's fitness to practise and, where there is cause for concern, make a referral to the Fitness to Practise Committee. The Health and Conduct Committee will therefore be conducted in an inquisitorial and not an adversarial manner.

The following is the normal process for consideration of a student's circumstances by the Health and Conduct Committee:

² The term student may refer to current or prospective students

1. All potential referrals to the Health and Conduct Committee should be forwarded to a nominated senior School of Life Sciences administrator. Where referrals are made regarding prospective students that referral will be made with the individual's written permission to disclose pertinent information.
 - Referrals may be made by members of the teaching staff, students, placement providers, external health professional supervisors, patients and members of the public
 - Referrals need not be made explicitly to the Health and Conduct Committee; rather, all complaints about students' conduct or fitness to practise should be considered.
2. Referrals will be collated by the nominated administrator and considered for referral to the full Health and Conduct Committee by two members of Committee, including at least one of: the ABMS Course Director, ABMS Placement Tutor and the Director of Learning and Teaching.
 - In considering the circumstances of each potential referral the senior staff will be mindful of the gravity of the circumstances, the potential impact on patient and public well-being, and (in the case of less serious conduct issues) whether there is a pattern of minor but repeated poor professional conduct on file. Where appropriate, additional information may be requested.
 - Where the decision is that no referral to the Health and Conduct Committee is needed a full record must be kept in the student's file.

In all other cases the circumstances will be passed to the Health and Conduct Committee for consideration.

3. For each referral that is passed to the Committee the student will be given prior notice in writing by the School administrative staff
 - This communication will contain the reason(s) for the referral as well as the date and time of the relevant Health and Conduct Committee
 - A full set of documentation pertaining to the inquiry will be appended to the letter (i.e. copy of School Health and Conduct Procedure; the report of the issue under investigation; supportive documentary evidence).
 - At least two weeks' notice will be given to the student
 - A referred student should be:
 - asked to indicate to the School administrative office in writing his/her intention to attend
 - reminded that they can seek advice from the Independent Advice Unit in the Students' Union / Student Support Lecturer in the School prior to attending.
 - invited to provide complete and comprehensive documentary evidence of mitigating circumstances to support their case, to the Secretary to the Committee at least one week in advance of the meeting. Where matters of health are considered, the Committee would require submission of supporting information by a registered health care professional. This information should be provided at least one week in advance of the meeting.
4. Prior to a meeting of the Committee the nominated administrator will provide the Committee members with a report of the circumstances, including any communications or evidence made or provided by the student for each case to be considered.
5. The meeting will be conducted as follows:
 - i. For each student the committee will consider in private the report presented
 - ii. The Chair will then invite the student to present any information that they feel is relevant and any evidence of mitigation
 - iii. The student may be accompanied by a friend / supporter
 - iv. If a student chooses not to attend, a written submission and or evidence of mitigation supplied by the student will be considered. The Committee will generally not consider supporting statements

from family or friends but will consider documentary evidence from general practitioners and other similar bodies.

- If a student asserts, for reasons considered valid by the committee, that s/he is not able to attend the case may be deferred until the next meeting. However, where the circumstances indicate a significant risk to patients, the public or colleagues, the committee may make a referral to the Faculty Fitness to Practise Committee where interim action may be taken
 - If a student asserts that s/he is not able to attend but the reasons given are not considered valid by the committee the case may be considered in his/her absence based upon the available reports and evidence
- v. The committee members may question the student under the direction of the Chair. The student's supporter may be invited to assist the committee at the discretion of the Chair
- vi. Having given the student full opportunity to make representations, the Committee will consider the available information in private and reach a decision.
6. The Committee may:
- Find that no further action is required;
 - Refer the student for support / investigation e.g., occupational health service; student support services.
 - Issue a warning to the student, with recommendations where appropriate;
 - Refer the student to the Fitness to Practise Committee (see Keele University Regulation 18).
7. The student, if available, will be informed of this decision by the Chair of the Committee and the decision will be communicated / confirmed in writing within five working days of the meeting.
8. The decision of the Committee will be kept in the student's file and will be communicated to the student's personal tutor, their Course Director, and the Director of Academic Services.
9. The student may appeal against any decision that is reached.
Where a student is unwilling to accept the decision of the School of Life Sciences Health and Conduct Committee she/he should inform the Head of School in writing within 14 days of being notified of the decision of the Committee. The circumstances of the case will then be referred to and considered by the Fitness to Practise Committee.
10. The School of Life Sciences Committee will meet with full membership (as far as practicable) annually to review procedures and recommend amendment as appropriate.

Procedure

The following outlines the procedure for referrals to the Health and Conduct Committee and its proceedings (see Table 1).

Conduct of the Meeting:

- The Chair opens the meeting and introduces panel members to each other
 - The Chair invites the panel to review received documentation pertaining to the inquiry
 - The Chair asks the Committee Secretary to invite the student and any representative to the meeting
- Chair:
- a. Introduces panel members
 - b. Asks student to confirm name
 - c. Explain role of representatives, if any and when they can speak
 - when student asks them to
 - at the end to comment
 - d. Explains the purpose of the Committee meeting
 - e. Asks them to explain the circumstances
 - f. Asks if they are aware of the School Health and Conduct Procedure

- g. Asks if they were made aware of regulatory body requirements and student guidance in relation to regulatory body requirements
- h. Asks if they were aware of the School's Health and Conduct requirements, in the course regulations; periodic updates pertaining to professional conduct
- i. Asks if they signed a declaration of good health and professional conduct
- The inquiry:
 - j. The Chair asks specific questions
 - k. The Chair invites each panel member to ask specific questions
 - l. The Chair asks the student if they wish to add anything
 - m. The Chair asks representatives if they wish to add anything
- The student and representative(s) are asked to leave and wait to be called
- The Chair invites panel discussion and the recommendation is made (see range of recommendations below)
- The Student and representative(s) are invited back in
- The Chair summarises the case and delivers the recommendation that will be confirmed in writing
- The Chair thanks student, and representatives, for attending and asks them to leave.

Recommendations of the Committee

Recommendations of the Committee may include one or more of the following:-

- No further action is required;
- Refer the student for support / investigation e.g., occupational health service; student support services.
- Issue a warning to the student, with recommendations where appropriate;
- The student is referred to the Fitness to Practise Committee.

The Chair of the Committee will inform the student of this decision and this decision will be confirmed in writing from the Head of School (or nominated Chair of the panel) within five working days of the meeting.

Should the student be unwilling to accept the outcome of the inquiry, the case will be referred to the Fitness to Practise Committee.

If a case is referred to the Fitness to Practise panel a full report, together with a full set of documentary evidence to support the case, will be sent to the Faculty of Health Office to prepare the Fitness to Practise inquiry.

Table 1: Procedure for referral to Health and Conduct Committee

The following diagram represents in summary only the essential features and principal lines of responsibility of the Fitness to Practise Procedure for all School students; the textual description of the Health and Conduct procedure is definitive.

