

PROGRAMME SPECIFICATION

FOR TAUGHT PROGRAMMES AT ALL LEVELS



Name of Programme:		BSc in Biomedical Sciences (with Integrated Foundation)	
Final award (BSc, MA etc):		BSc	
Awarding institution/body:	University of Buckingham	Teaching institution:	University of Buckingham, Crewe
School of Study:	Medipathways/Science & Medicine	Parent Department:	
Length of the programme:	3 Years	Method of study:	Full time
Framework for Higher Education Qualifications (FHEQ) Level	6	Relevant subject benchmark statement (SBS)	Biosciences Biomedical Science
Professional body accreditation (if applicable):	N/A		
Criteria for admission to the programme:	<ul style="list-style-type: none"> • Typically, recent successful study in English at college level in the natural sciences • IELTS 6.0 and prior mathematics study • Details appendicised 	Cohort(s) to which this programme specification is applicable:	From September 2019
UCAS Code	TBC		

Summary of Programme

This is a BSc (Hons) degree in Biomedical Sciences studied in 3 years across levels 3 to 6. It is intended as a preparatory programme for students intending to apply for medicine and dentistry degrees. Students attend for eight semesters, with an optional additional semester of English and Academic Skills if required. Intermediate awards are available to students who wish to leave at the end of level 3 (Certificate in Foundation Medical Studies) or level 4 (Certificate of Higher Education in Medical Sciences). Subject coverage includes the following topics (note that these are not, in every case, the actual names of the modules).

1) Foundation Biomedicine, from Genes and Cells to System Regulation and Population biology. 2) Foundation Chemistry, including physical, periodic and organic chemistry. 3) Foundation quantitative studies in mathematics, physics and introductory computing. 4) Medicine, Disease and Society. 5) Independent Investigation in Biomedicine. *These first five topics comprise the level 3 Certificate in Foundation Medical Studies.*

6) The doctor-patient relationship. 7) Molecular Cell Biology. 8) Chemistry and Physics for the Life Sciences. 9) Neurobiology and Musculoskeletal control. 10) Gastrointestinal function and nutritional biochemistry. 11. Circulation, breathing and the interior milieu. *Modules 6-11 comprise the level 4 CertHE in Medical Sciences.*

12 & 13) Integrated pathology and therapeutics. 14) Infection and immunity. 15) Research methods and modelling approaches. 16) Cell signalling, developmental biology and cancer. 17) Genes, disease and human variation. 18) Brain and behavior. 19) Independent research project. *Modules 12-19 conclude the students' studies at levels 5 and 6.*

Educational Aims of the Programme

The aim is to support potential applicants for medical or dental school with a rigorous scientific education and professional mentoring, from level 3 onwards. Students are also encouraged to consider alternatives to medicine and dentistry, including other health professions, high calibre graduate employment, and MSc/PhD study. This aim is accomplished via the following objectives: to introduce students to the molecular and physiological sciences, the physical and data sciences underpinning biology/health, and the medical humanities; and to develop students' cognitive, academic and professional attributes. Further, at the advanced stages of the degree, to educate students in aspects of pathology and therapeutics, current perspectives in molecular and behavioural medicine, and the use of research tools to generate original findings in science, medicine and public health. The programme emphasises concepts, mechanisms, data, and a personal/reflective response to study. Throughout the programme, students will encounter authentic assessments that test measurable learning outcomes.

Programme Outcomes

Programme Outcomes	
<p><u>Knowledge and understanding of:</u></p> <ol style="list-style-type: none"> 1. The preconditions for life, and its regulatory mechanisms 2. The scale, structure and reactions of matter. 3. Quantitative approaches to the life sciences. 4. Historical and social context of health and health systems 5. Cell function and tissue architecture 6. Cell communication, including endocrine signals 7. Biochemical pathways and metabolism 8. Macromolecular structure and function 9. Energy and matter transformations in biology 10. Chemical and physical processes 11. Biophysical modelling 12. Biological information and its transmission 13. Human variation and physiological evolution 14. Physiological regulation and adaptation 15. Neuroscience and behaviour 16. Skeletomuscular function 17. The main organ systems, their interrelation and regulation 18. Case studies in human pathology and therapeutics 19. Pharmacology and medicinal chemistry 20. Pathogens, response to infection, and immunity 21. Signalling aspects of developmental biology and cancer 22. Biological and clinical research methods 23. Data critique and evaluation 24. Hypothesis testing and research, constructing proposals 25. Bioethics, medical ethics, professional conduct, the doctor-patient relationship 	<p><u>Teaching/Learning Strategy</u> <i>Explain the teaching and learning methods and strategies used to help students achieve each part of the knowledge and understanding</i></p> <ol style="list-style-type: none"> 1. Lectures 2. Class tutorials with preparation, including flipped learning 3. Small group tutorials and task forces 4. Problem based learning, team based learning 5. Feed-forward assignments 6. Student-led sessions (journal clubs, debates & seminars) 7. Engagement with external events 8. In silico labs 9. Wet labs 10. Directed study 11. Project supervision 12. Personal statement, mock interview practice
<p><u>Cognitive (thinking) skills:</u></p> <p>The programme is designed to promote the development of these graduate attributes, which map onto scientific and medical habits of thought and practice:</p> <ol style="list-style-type: none"> 1. Analysis of claims 	<p><u>Assessment Strategy:</u> <i>Explain the strategies used to assess the achievement of each part of the knowledge and understanding</i></p> <ol style="list-style-type: none"> 1. Essays 2. Case reports 3. Examinations 4. In-class tests 5. Timed open-source tasks 6. Structured problems 7. Assessed seminars and journal club participation 8. Portfolio entries, some on collaborative online documents 9. Wet and dry lab outputs and reports, including team modelling projects 10. PBL reports, TBL assessment 11. Presentations, posters, student lectures 12. Mini-reviews and literature surveys 13. Negotiated feedback 14. Dissertation 15. Project notebook 16. Viva voce examination
<p><u>Teaching/Learning Strategy:</u> <i>Explain the teaching and learning methods and strategies used to help students achieve each part of the cognitive skills</i></p> <ol style="list-style-type: none"> 1. Lectures 2. Class tutorials with preparation, including flipped learning 3. Small group tutorials and task forces 	

<ol style="list-style-type: none"> 2. Synthesis of sources 3. Interpretation of evidence 4. Critique and decision making 5. Justification of decisions 6. Innovative thinking, hypothesis formation, generation of experimental proposal 		<ol style="list-style-type: none"> 4. Problem based learning, team based learning 5. Feed-forward assignments 6. Student-led sessions (journal clubs, debates & seminars) 7. Engagement with external events 8. In silico labs 9. Wet labs 10. Directed study 11. Project supervision 12. Personal statement, mock interview practice
	→	<p><u>Assessment Strategy:</u> <i>Explain the strategies used to assess the achievement of each part of the knowledge and understanding</i></p> <ol style="list-style-type: none"> 1. Essays 2. Case reports 3. Examinations 4. In-class tests 5. Timed open-source tasks 6. Structured problems 7. Assessed seminars and journal club participation 8. Portfolio entries, some on collaborative online documents 9. Wet and dry lab outputs and reports, including team modelling projects 10. PBL reports, TBL assessment 11. Presentations, posters, student lectures 12. Mini-reviews and literature surveys 13. Negotiated feedback 14. Extended project writing Dissertation 15. Project notebook 16. Viva voce examination
<p><u>Practical/Transferable skills (able to):</u></p> <ol style="list-style-type: none"> 1. Laboratory technique: protocols in cell biology, chemistry, biochemistry and anatomy 2. Assessment of histological specimens 3. Bioinformatic skills 4. Practical biomedical modelling 5. Practical statistics, evaluation of evidence, and meta-analysis 6. Clinical case analysis 7. Generation of original data 8. Preparation of a research proposal; response to a referee 9. Professional and workplace skills 10. Communicating with impact 11. Information literacy, source retrieval and selection <p>Level 5/6 students may undertake student selected components or 'wet' projects in microbiology, molecular biology or biochemistry.</p>	→	<p><u>Teaching/Learning Strategy:</u> <i>Explain the teaching and learning methods and strategies used to help students achieve each part of the practical/transferable skills</i></p> <ol style="list-style-type: none"> 1. Lab exercise: cell biology, neuroscience, biochemistry, renal system, chemistry. 2. Specimen observation and drawing (including microscopic) 3. Cadaver lab visit 4. Bioinformatics lab 5. Modelling lab 6. Metaanalysis labs 7. Lectures/demonstrations 8. PBL sessions 9. Coaching in interview technique and CV preparation 10. Feedback 11. Independent projects/ Dissertation
	→	<p><u>Assessment Strategy:</u> <i>Explain the strategies used to assess the achievement of each part of the practical/transferable skills</i></p> <ol style="list-style-type: none"> 1. Lab notebook 2. In silico biology assignments 3. Statistics, meta-analysis and genomics assignments 4. Minireviews 5. Group projects in physical modelling 6. Presentations, seminars, debates. 7. In class tests

		8. Reflective journals 9. Mock job application 10.(For projects) Dissertation and viva
External Reference Points The following reference points were used in designing the programme		
<ul style="list-style-type: none"> ● Framework for Higher Education Qualifications http://www.qaa.ac.uk/en/quality-code/the-existing-uk-quality-code ● Relevant Subject Benchmark Statement(s) http://www.qaa.ac.uk/docs/gaa/subject-benchmark-statements/sbs-biosciences-15.pdf?sfvrsn=4eef781_18 http://www.qaa.ac.uk/docs/gaa/subject-benchmark-statements/sbs-biomedical-sciences-15.pdf?sfvrsn=3deef781_14 http://www.qaa.ac.uk/docs/gaa/subject-benchmark-statements/subject-benchmark-statement-medicine.pdf?sfvrsn=559af781_8 <p>Biosciences, Biomedical Science, Medicine</p>		
<p>Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each course unit/module can be found in the departmental or programme handbook. The accuracy of the information contained in this document is reviewed annually by the University of Buckingham and may be audited by the Quality Assurance Agency.</p>		
Programme Director(s) Name(s):		
Date of Production:		
Date approved by School Learning and Teaching Committee		
Date approved by School Board of Study		
Date approved by University Learning and Teaching Committee		
Date of Annual Review:		

Programme Structure: BSc in Biomedical Sciences (including Integrated Foundation Year)

September Entry with the prior semester of English and Academic Skills

Semester						
YEAR 1	1	English and Academic Skills				
	2	Biomedicine I: Genes, Cells and Development (L3, 20)	Chemistry I: Atoms, Molecules and Reactions (L3, 20)	Medicine, Disease and Society (L3, 10)	Measurement in the Life Sciences (L3, 20)	
		Formative Examinations (2 papers (Biomedicine & Chemistry) and one report (MLS))				
	3	Biomedicine II: Tissues, Systems and Regulation (L3, 20)	Chemistry II: Periodic and Organic Chemistry (L3, 20)	Investigation in Biomedicine (L3 10)		
Examinations (3 papers (Biomedicine & Chemistry & MLS) and one report (IB))						
YEAR 2	4	Foundations of Medical Science (L4, 4)	Molecular Cell Biology (L4, 20)	Brain, Muscle and Coordination (L4, 20)	Matter and Energy in Medicine (L4, 20)	Doctors, Patients and Health (L4, 20)
		Examinations (2 papers, BMC & MCB)				
	5	Gut, Hormones and Metabolism (L4, 20)	Circulatory System and Fluid Balance (L4, 20)			
		Examinations (3 papers, GHM, CFB, MEM)				
6	Experiments, Data and Evidence (L5, 30)	Integrated Pathology and Therapeutics 1 (L5, 30)	Immunology, Infection and Immunity (L5, 30)	Cell Signalling and Communication (L5, 30)		
YEAR 3	7	Examinations (3 papers, IPT1, III & CSC)				
	8	Independent Project (L6, 30)	Genes, Disease and Identity (L6, 30)	Integrated Pathology and Therapeutics 2 (L5, 30)	Brain, Physiology and Behaviour (L6, 30)	
		9	Examinations (3 papers, GDI, IPT2 & BPB)			

September and January Entry

Semester					
YEAR 1	1	Biomedicine I: Genes, Cells and Development (L3, 20)	Chemistry I: Atoms, Molecules and Reactions (L3, 20)	Medicine, Disease and Society (L3, 10)	Measurement in the Life Sciences (L3, 20)
	Formative Examinations (2 papers (Biomedicine & Chemistry) and one report (MLS))				
	2	Biomedicine II: Tissues, Systems and Regulation (L3, 20)	Chemistry II: Periodic and Organic Chemistry (L3, 20)	Investigation in Biomedicine (L3 10)	
	Examinations (3 papers (Biomedicine & Chemistry & MLS) and one report (IB))				
YEAR 2	3	Foundations of Medical Science (L4, 4)	Molecular Cell Biology (L4, 20)	Brain, Muscle and Coordination (L4, 20)	Matter and Energy in Medicine (L4, 20)
	Examinations (2 papers, BMC & MCB)				
	4	Gut, Hormones and Metabolism (L4, 20)	Circulatory System and Fluid Balance (L4, 20)		
	Examinations (3 papers, GHM, CFB, MEM)				
	5	Experiments, Data and Evidence (L5, 30)	Integrated Pathology and Therapeutics 1 (L5, 30)	Immunology, Infection and Immunity (L5, 30)	
YEAR 3	6	Examinations (3 papers, IPT1, III & CSC)			
	7	Independent Project (L6, 30)	Genes, Disease and Identity (L6, 30)	Integrated Pathology and Therapeutics 2 (L5, 30)	Brain, Physiology and Behaviour (L6, 30)
	8	Examinations (3 papers, GDI, IPT2 & BPB)			

Appendix: Detailed admissions criteria

Successful applicants will usually satisfy at least ONE of the following: please note that the whole application is considered, and that there is no automatic admission on the basis of meeting the threshold qualifications.

- BBB at A-level, but not in natural sciences subjects
- A Bachelor degree, but not in a natural science
- Alternative level 3 qualifications that demonstrate academic ability in the natural sciences but are not equivalent to BBB at A-level.
- B at A-level in a single natural science or mathematics

In addition, successful applicants will have:

- GCSE grade B or 6 or equivalent in Mathematics, English and Science (at least single subject)
- Evidence that they have recently successfully studied in English
- IELTS 6.0 overall (or equivalent) for international students. 6.0 in reading and writing, 5.5 in listening and speaking