

# PROGRAMME SPECIFICATION

## FOR TAUGHT PROGRAMMES AT ALL LEVELS



<b>Name of Programme:</b>		BSc Biomedical Sciences	
<b>Final award (BSc, MA etc.):</b>		BSc	
<b>Awarding institution/body:</b>	University of Buckingham	<b>Teaching institution:</b>	University of Buckingham, Crewe
<b>School of Study:</b>	Medipathways/Science & Medicine	<b>Parent Department:</b>	
<b>Length of the programme:</b>	2 Years	<b>Method of study:</b>	Full time
<b>Framework for Higher Education Qualifications (FHEQ) Level</b>	6	<b>Relevant subject benchmark statement (SBS)</b>	Biosciences Biomedical Science
<b>Professional body accreditation (if applicable):</b>	N/A		
<b>Criteria for admission to the programme:</b>	Three A level passes (including Biology and Chemistry) at BBC or above. A third science is preferred. English language level equivalent to at least 6.5 IELTS or GCSE English Language grade A-C. Mature and APEL students will be considered on an individual basis.	<b>Cohort(s) to which this programme specification is applicable:</b>	From September 2018
<b>UCAS Code</b>	TBC		

### Summary of Programme

This is a BSc (Hons) degree in Biomedical Sciences, studied in 2 years (6 Semesters). It is intended as a preparatory programme for students intending to apply for medicine and dentistry degrees. Students attend for six semesters. Intermediate awards are available to students who wish to leave at the end of level 4 subject to satisfactory completion of all the level 4 modules. Subject coverage includes the following topics (note that these are not, in every case, the actual names of the modules).

1) The doctor-patient relationship. 2) Molecular Cell Biology. 3) Chemistry and Physics for the Life Sciences. 4) Neurobiology and Musculoskeletal control. 5) Gastrointestinal function and nutritional biochemistry. 6) Circulation, breathing and the interior milieu. *Modules 1-6 comprise the level 4 CertHE in Medical Sciences.*

7 & 8) Integrated pathology and therapeutics. 9) Infection and immunity. 10) Research methods and modelling approaches. 11) Cell signalling, developmental biology and cancer. 12) Genes, disease and human variation. 13) Brain and behavior. 14) Independent research project. *Modules 7-14 conclude the students' studies at levels 5 and 6.*

### Educational Aims of the Programme

The aim is to support applicants to medical or dental school with a rigorous scientific education and professional mentoring. Students are also encouraged to consider alternatives to medicine and dentistry, including other health professions, 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 Learning Outcomes

<b>Programme Learning Outcomes</b>		
<p><b><u>Knowledge and understanding:</u></b></p> <p>On successful completion of the BSc programme, students will have knowledge and understanding of the following disciplines.</p> <ol style="list-style-type: none"> <li>1. Cell function and tissue architecture</li> <li>2. Cell communication including endocrine signals</li> <li>3. Biochemical pathways and metabolism</li> <li>4. Macromolecular structure and function</li> <li>5. Energy and matter transformations in biology</li> <li>6. Chemical and physical processes and modelling</li> <li>7. Biological information and its transmission</li> <li>8. Human variation and physiological evolution</li> <li>9. Physiological regulation and adaptation</li> <li>10. Neuroscience and behaviour</li> <li>11. Skeletomuscular function</li> <li>12. The main organ systems and their interrelation</li> <li>13. Aspects of human pathology and therapeutics</li> <li>14. Pharmacology and medicinal chemistry</li> <li>15. Pathogens, response to infection and immunity</li> <li>16. Signalling aspects of developmental biology and cancer</li> <li>17. Biological and clinical research methods</li> <li>18. Data evaluation and critique</li> <li>19. Hypothesis testing and research, constructing proposals</li> <li>20. Bioethics, medical ethics, professional conduct</li> </ol>	<p>→</p>	<p><b><u>Teaching/Learning Strategy</u></b></p> <p>In the course of this programme, students will encounter these learning activities:</p> <ol style="list-style-type: none"> <li>1. Lectures</li> <li>2. Class tutorials with preparation</li> <li>3. Small group tutorials/task forces</li> <li>4. Problem based learning</li> <li>5. Journal clubs</li> <li>6. Attendance at external events</li> <li>7. Student-led seminars</li> <li>8. In silico labs</li> <li>9. Wet labs</li> <li>10. Directed study</li> <li>11. Personal statement, mock interview</li> </ol>
<p><b><u>Cognitive (thinking) skills:</u></b></p> <p>The programme is designed to promote the development of these graduate attributes, which map onto scientific and medical habits of thought:</p> <ol style="list-style-type: none"> <li>1. Interpretation of data</li> <li>2. Critical Thinking</li> <li>3. Synthesis of data from different sources</li> <li>4. Justification/decision making</li> <li>5. Innovative thinking</li> </ol>	<p>→</p>	<p><b><u>Assessment Strategy:</u></b></p> <p>Students will meet these forms of assessment:</p> <ol style="list-style-type: none"> <li>1. Essays</li> <li>2. Case reports</li> <li>3. Exams and in-class tests</li> <li>4. Timed open-source tasks</li> <li>5. Structured problems</li> <li>6. Tutorial and journal club participation</li> <li>7. Portfolio entries</li> <li>8. Wet and dry lab outputs and reports</li> <li>9. PBL reports</li> <li>10. Presentations, posters, student lectures</li> <li>11. Dissertation</li> <li>12. Project notebook</li> <li>13. Viva</li> </ol>
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<p><b><u>Practical skills (subject specific):</u></b></p> <ol style="list-style-type: none"> <li>1. Laboratory technique: protocols in cell biology, chemistry, biochemistry and anatomy</li> <li>2. Assessment of histological specimens</li> <li>3. Bioinformatic skills</li> <li>4. Practical biomedical modelling</li> <li>5. Practical statistics and meta-analysis</li> <li>6. Level 5/6 students may undertake student selected components or 'wet' projects in microbiology, molecular biology or biochemistry.</li> </ol>	→	<p><b><u>Teaching/Learning Strategy:</u></b></p> <ol style="list-style-type: none"> <li>1. Lab exercise: cell biology, neuroscience, endocrinology, renal system, chemistry.</li> <li>2. Specimen observation and drawing (including microscopic)</li> <li>3. Cadaver lab visit</li> <li>4. Bioinformatics lab</li> <li>5. Modelling lab</li> <li>6. Metaanalysis</li> <li>7. Lectures/demonstrations</li> <li>8. Independent projects/ Dissertation</li> </ol>
	→	<p><b><u>Assessment Strategy:</u></b></p> <ol style="list-style-type: none"> <li>1. Lab notebook</li> <li>2. Pathology journal</li> <li>3. In silico biology assignments</li> <li>4. Statistics, meta-analysis and sequencing assignments</li> <li>5. Group project in physical modelling</li> <li>6. (For projects) Dissertation and viva</li> </ol>
<p><b><u>Transferable skills (generic):</u></b></p> <ol style="list-style-type: none"> <li>1. Constructive thinking,</li> <li>2. Independent learning and self-guided study</li> <li>3. Team working skills</li> <li>4. Communicating effectively,</li> <li>5. Self-awareness and reflection</li> <li>6. Time Management skills</li> <li>7. Planning and Organisational skills</li> <li>8. IT skills</li> </ol>	→	<p><b><u>Teaching/Learning Strategy:</u></b></p> <ol style="list-style-type: none"> <li>1. Medimenter reports/MMI performance</li> <li>2. Medipathways student conference</li> <li>3. The programme embeds these professional and employability skills in class tutorials, assessments, and the PBL process.</li> <li>4. Supervised workshop leading (level 6 students teaching level 4)</li> </ol>
	→	<p><b><u>Assessment Strategy:</u></b></p> <ol style="list-style-type: none"> <li>1. Timed open-source tasks</li> <li>2. Feedforward exercises and self-assessment</li> <li>3. Tutorial and journal club participation</li> <li>4. Portfolio entries</li> <li>5. Wet and dry lab outputs and reports</li> <li>6. PBL reports</li> <li>7. Presentations, posters, student lectures</li> <li>8. Dissertation</li> <li>9. Project notebook</li> <li>10. Viva</li> </ol>

### External Reference Points

The following reference points were used in designing the programme

- Framework for Higher Education Qualifications (<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/quality-code-A1.aspx>);
- How to Use Learning Outcomes and Assessment Criteria by David Gosling and Jenny Moon. Published by SEEC. (<http://www.seec.org.uk/publications/how-use-learning-outcomes-and-assessment-criteria>).

**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 checked by the Quality Assurance Agency.

**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

### September Entry

All modules are 30 units, except where specified

Semester						
YEAR 1	1	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)
	<b>Examinations (2 papers, BMC &amp; MCB)</b>					
	2	Gut, Hormones and Metabolism (L4, 20)		Circulatory System and Fluid Balance (L4, 20)		
	<b>Examinations (3 papers, GHM, CFB, MEM)</b>					
	3	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 2	4	<b>Examinations (3 papers, IPT1, III &amp; CSC)</b>				
	5	Independent Project (L6, 30)	Genes, Disease and Identity (L6, 30)	Integrated Pathology and Therapeutics 2 (L5, 30)		Brain, Physiology and Behaviour (L6, 30)
	6	<b>Examinations (3 papers, GDI, IPT2 &amp; BPB)</b>				