Aston University

PROGRAMME SPECIFICATION
(2013-14)

Programme Title	**Biomedical Science**
UCAS/JACS Code	B900/C900
School/Subject Area	LHS
Final Award	BSc (Honours)
Interim Award(s)	Certificate of Higher Education 120 credits Diploma of Higher Education 240 credits
Mode(s) of Study	Full time
Normal Length of Programme	3 Years 4 Years with Sandwich Placement Year
Total Credits	3 Years – 360 Credits 4 Years – 480 Credits
Programme Accredited By	Institute of Biomedical Science
Dates Programme Specification Written and Revised	November 2005 (Dr Anthony C. Hilton) Revised August 2006 (Dr Anthony C. Hilton) Revised July 2009 (Dr Anthony C. Hilton) Revised October 2010 (Dr P.J.Hanson) Revised July 2011 (Dr P. J. Hanson) Revised June 2012 (Dr P. J. Hanson) Revised July 2013 (Dr. A.B.Vernallis)

Educational Aims of the Programme	• To provide a modern relevant degree programme in Biomedical Science. • To provide an appropriate environment for the achievement of excellence in learning and scholarship. • To help develop the knowledge skills and understanding of the professional biomedical scientist. • To promote an awareness of the application of biomedical science knowledge to human health and welfare. • To allow students to gain laboratory and practical skills through an optional placement year and by completion of the IBMS registration portfolio seek registration with the HCPC upon graduation. • To produce graduates whose skills and qualities equip them for a role in a range of biomedical science disciplines and research in the allied health professions.

Relevant Subject Benchmark Statements and other current External and Internal Strategies, Policies or Research used to inform programme outcomes	Institute of Biomedical Science Accreditation Requirements Benchmark Statements for Biomedical Science (QAA, 2007) Framework for Higher Education Qualifications Biology/BMS Programmes Committee; Biomedical Science Employer Liaison group; LHS and University Learning and Teaching Strategies

STAGE 1

Programme Structures and Requirements: Levels, Modules and Credits

Module Title	Credits	Level	Module Code	Core/Option	Condoneable Y/N	Pre-requisite(s) Y/N
Biomedical Key Skills I	10	4	BY1KS1	Core	Y	N
Biochemistry	20	4	BY1BC1	Core	Y	N
Physiology	20	4	PH1401	Core	Y	N
Microbiology I	20	4	BY1MI1	Core	Y	N
Cell Biology	10	4	BY1CB1	Core	Y	N
Inheritance and Population Genetics	10	4	BY1GN1	Core	Y	N
Molecular Biology	10	4	BY1MB1	Core	Y	N
Introductory Immunology	10	4	BY1IM1	Core	Y	N
Development and Human Anatomy	10	4	BY1DA1	Core	Y	N
TOTAL	120					

STAGE 2

Programme Structures and Requirements: Levels, Modules and Credits

Module Title	Credits	Level	Module Code	Core/Option	Condoneable Y/N	Pre-requisite(s) Y/N
Microbiology II	10	5	BY2MI1	Core	Y	Y
Immunology	20	5	BY2 IM1	Core	Y	Y
Human Physiology	10	5	BY2HP2	Core	Y	Y
Nutrition and Dietetics	10	5	BY2 NU1	Core	Y	Y
Molecular Genetics	10	5	BY2MB1	Core	Y	Y
Metabolism	10	5	BY2BC1	Core	Y	Y
Molecular Pathology	10	5	BY2PA1	Core	Y	Y
Endocrinology	10	5	BY2EN2	Core	Y	Y
Biomedical Key Skills II	20	5	BY2KS2	Core	Y	Y
Biomedical Technology	10	5	BY2BT2	Core	Y	Y
TOTAL	120					

STAGE 3

Programme Structures and Requirements: Levels, Modules and Credits						
Module Title	Credits	Level	Module Code	Core/Option	Condoneable Y/N	Pre-requisite(s) Y/N
Placement	120	P	BYPCO1	Option	N	Y
TOTAL	120					

STAGE F

Programme Structures and Requirements: Levels, Modules and Credits						
Module Title	Credits	Level	Module Code	Core/Option	Condoneable Y/N	Pre-requisite(s) Y/N
Medical Biochemistry	10	6	BY3 BC1	Core	Y	Y
Immunology	10	6	BY3IM1	Core	Y	Y
Haematology and Transfusion Science	10	6	BY3HT1	Core	Y	Y
Cellular Pathology	10	6	BY3CP1	Core	Y	Y
Biological Basis of Human Disease	10	6	BY3BD2	Core	Y	Y
Applied Molecular Biology	10	6	BY3MB1	Core	Y	Y
Clinical & Food Microbiology	20	6	BY3FC1	Core	Y	Y
Biomedical Key Skills III	10	6	BY3KS4	Core	Y	Y
Biomedical Research Project	30	6	BY3PR2	Core	N	Y
TOTAL	120					

Programme Outcomes, Learning and Teaching and Assessment Strategies			
A. <u>Knowledge and Understanding</u>			
	On successful completion of their programme, students are expected to have knowledge and understanding of:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	How life processes operate at the molecular, cellular, tissue and organism level.	Lectures: • to introduce students to key concepts and theories • to indicate areas of further study and reading • to provide a broad overview of the subject • to stimulate enthusiasm and desire for further independent enquiry Tutorials: • to clarify, reinforce and extend students' understanding and knowledge • to give an opportunity for more individual advice on difficult concepts • to give students the support which is most appropriate to their ability and experience in the subject • to stimulate discussion Laboratory Practical: • to enable students to put theory into practice and develop essential laboratory skills Independent learning such as computer-based learning packages: • to enable students to work through at their own pace and to develop an understanding of the subject	Closed Book Examinations/Tests: • to examine appreciation of key issues • to assess understanding of content and aims Multiple Choice tests • to assess students' range of knowledge and understanding of the subject • to provide students with formative information on their progress Written assignments: • to enable students to show their understanding of different perspectives and their critical appreciation of different questions and approaches • to demonstrate whether student are able to apply what they have learnt Practical Reports • to assess students' ability to communicate scientific investigations in the style of a peer reviewed written publication Verbal presentations • to assess students' ability to develop effective scientific information Poster presentations • to assess students' ability to communicate scientific information in the style of a conference poster Learning logs and IBMS registration portfolio • To enable students to demonstrate competency and experience in key practical laboratory and professional skills (placement students only)
2	The structure, function and control of the human body, its component parts and major systems.		
3	The chemical processes which support life. The structure, function and metabolism, of carbohydrates, lipids, nucleic acids and proteins.		
4	The examination of cells and tissues for indicators of disease.		
5	The structure, function and control of genes; techniques used in such study and the causes and consequences of alterations of genetic material.		
6	The immune response in health and disease.		
7	The structure, physiology, biochemistry, classification and control of microorganisms.		
8	The study and investigation of the different elements that constitute blood in normal and diseased states.		

B. **Intellectual Skills**			
	On successful completion of their programme, students are expected to be able to:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	Critically review scientific literature.	Tutorials: • to give an opportunity for individual advice on difficult concepts • to stimulate discussion and critical thought in a supportive environment Debates • to stimulate discussion and critical thought and use scientific reasoning to support arguments Project Work • to provide an opportunity to gather, interpret and critically review data Poster presentation: • to provide an opportunity to defend scientific reasoning through effective communication	Examinations (Theory and Practical) • to assess the ability to marshal arguments, apply models, and present ideas in a coherent and literate way • to assess whether students can apply the techniques of analysis taught Essays • to assess students' ability to research the topic • to assess students' ability to assemble and evaluate data, apply models, reason and present ideas in a coherent and literate way • to enable students to show their understanding of different perspectives and their critical appreciation of different questions and approaches Poster presentations • to assess students' ability to communicate scientific information in the style of a conference poster Project thesis • to assess students' ability to plan and perform an independent research study and to analyse appropriately and critically review scientific data
2	Create and test hypotheses.		
3	Report on their studies verbally and in writing.		
4	Design experiments to test hypotheses.		
5	Gather, analyse and interpret data from their own studies and those of others.		
6	Express themselves clearly and effectively by displaying logical selection and organisation of factual material and demonstrate clear reasoning verbally and in writing.		

C. **Professional Skills**			
	On successful completion of their programme, students are expected to be able to:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	Use a range of experimental techniques employed by professional biomedical scientists for the diagnosis, treatment and prevention of disease	Laboratory work • to enable students to put theory into practice and develop essential laboratory skills Project work • to enable students to plan and perform an independent research study • to analyse appropriately and critically review scientific data NHS laboratory experience (placement students only)	Practical Reports • to enable students to communicate scientific investigations in the style of a peer reviewed written publication Learning logs and IBMS registration portfolio • To enable students to demonstrate competency and experience in key practical laboratory and professional skills required of a biomedical scientist (placement students only) Project thesis • to assess students' ability to plan and perform an independent research study and to analyse appropriately and critically review scientific data
2	Select and use appropriate statistical techniques for the analysis of results derived from experiments in these areas.		
3	Plan and perform a research project and be aware of the need for good laboratory practice, health and safety and ethical considerations.		
4	Apply scientific principles to biomedical topics and be capable of using reflective enquiry to support or refute hypotheses.		

D. **Transferable Skills**			
	On successful completion of their programme, students are expected to show:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	The ability to maintain clear accurate and appropriate laboratory records.	Laboratory work • to enable students to put theory into practice and develop essential laboratory skills including data recording and record keeping Poster presentations • to develop students' ability to communicate scientific information in the style of a conference poster Project thesis • to enable students to plan and execute an independent research study and to analyse appropriately and critically review scientific data Groups Tasks: Debate, poster presentations • to enable students to solve problems and organise and manage group activities CAL and IT training sessions • to enable students to develop essential skills in IT literacy	Practical Reports • to assess students' ability to communicate scientific investigations in a clear and accurate manner Project reports • to assess students' ability to communicate scientific investigations in a clear and accurate manner • to assess numeracy skills and ability to evaluate experimental data CAL assessments • to assess students' ability to manipulate data, text and images in standard software and scientific packages Group Poster / Debate • to assess students' ability to work effectively as a group
2	Selective acquisition of data from lectures and written material.		
3	Communication skills covering both written and oral reports.		
4	Group working skills.		
5	Numeracy skills to evaluate experimental data.		
6	Work organisation and time management skills.		
7	Problem solving skills.		
8	IT skills.		
9	Competent learning skills to sustain lifelong learning and continuing professional development.		

Entry Requirements	Students must satisfy the entry requirements: http://www1.aston.ac.uk/study/undergraduate/courses/school/lhs/biomedical-sciences/

Programme Regulations	Attendance at all practicals and tutorials as well as specified lectures is mandatory and monitored by register. The Board of Examiners shall have the discretion to condone failure in normally not more than 20 credits at Stages 1, 2 and F of the programme. Placement does not contribute to the degree classification. **Ordinary Degree** Transfer to an IBMS-accredited ordinary degree is not possible.

General Regulations (http://www1.aston.ac.uk/registry/for-staff/regsandpolicies/general-regulations/) and the Regulations for the programme (above) take precedence over other information sources such as student handbooks if there is a conflict. If there is a conflict between General Regulations and Programme Regulations then General Regulations take precedence unless an exemption has been approved.

Further Information	

This specification provides a concise summary of the main features of the programme and the threshold learning outcomes that a student might normally be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. **The individual modules included in the programme may differ from those listed in this programme specification as our programmes are continuously reviewed.** Information on admissions requirements and career opportunities is available in the relevant prospectus. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the appropriate module specifications and programme handbook(s) which are available to students on enrolment.