Aston University

PROGRAMME SPECIFICATION
(2013-14)

Programme Title	**Applied Biomedical Science**
UCAS/JACS Code	C900/C900
School/Subject Area	LHS/Biology
Final Award	BSc (Honours)
Interim Award(s)	
Mode(s) of Study	Full time with compulsory placement year
Normal Length of Programme	4 Years with integrated placement year
Total Credits	4 Years – 480 Credits
Programme Accredited By	Institute of Biomedical Science (IBMS) Health and Care Professions Council (HCPC)
Dates Programme Specification Written and Revised	Written November 2005 as Biomedical Science (Dr A C Hilton) Revision November 2009 as Applied Biomedical Science (Dr P. J. Hanson) Revised June 2011 (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 a placement year, the successful completion of which will, upon graduation, make them eligible to apply to the HPC for registration • To produce graduates whose skills and qualities equip them for a role in a range of biomedical science disciplines in the allied health professions.

Relevant Subject Benchmark Statements and other current External and Internal Strategies, Policies or Research used to inform programme outcomes	Health Professions Council, Standards of Education and Training Health Professions Council, Standards of Proficiency Institute of Biomedical Science, Criteria and Requirements for the Accreditation and Re-accreditation of BSc (Hons) Degrees in Biomedical Science Benchmark statements for Biomedical Science (QAA, 2007) Framework for Higher Education Qualifications Biology/ Biomedical Science Programmes Committee

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
Laboratory Placement	120	P	BYPC01	Core	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: Professional Development	10	6	BY3KS2	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 Practicals: • 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 Placement in a CPA accredited, IBMS approved NHS laboratory • to enable students to acquire competency and experience in key practical laboratory and professional skills required of a BMS	Closed Book Examinations/Tests: • to examine knowledge and 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 students are able to apply what they have learnt Practical Reports • to assess students' ability to illustrate theoretical concepts by practical experiment Blackboard tests • to assess the development of knowledge and understanding Learning logs and IBMS registration portfolio • to assess whether students meet the HPC standards of proficiency
2	The structure, function and control of the human body, its component parts and major systems, and changes associated with disease, disorder and dysfunction.		
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 pathogenic agents.		
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 evaluate scientific literature.	Tutorials: • to give an opportunity for individual advice on difficult concepts • to stimulate discussion and critical thought in a supportive environment Project Work • to provide an opportunity to gather, interpret and critically review data Laboratory Practicals: • to enable students to put theory into practice and develop essential laboratory skills Poster presentations: • to provide an opportunity to defend scientific reasoning through effective communication	Essays/Case studies • 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 Examinations • to assess the ability to marshal arguments, apply models, and present ideas in a coherent and literate way Project report proposal • to assess whether students can apply the techniques of analysis and synthesis • to assess students' ability to plan and perform an independent research study and to analyse appropriately and critically review scientific data Practical Reports • to assess students' ability to communicate scientific investigations in the style of a peer reviewed written publication Poster presentations • to assess students' ability to communicate scientific information in the style of a conference poster • to assess students' ability to develop effective verbal communication of scientific information
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	Select and use appropriate statistical techniques for the analysis of results derived from experiments		
7	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	Knowledge of a range of experimental techniques employed by professional biomedical scientists for the diagnosis, treatment and prevention of disease	Lectures: • to introduce students to key concepts, Laboratory work • to enable students to put theory into practice and develop essential laboratory skills Placement in a CPA accredited, IBMS approved, laboratory Project work • to enable students to plan and perform an independent research study, • to analyse appropriately and critically review scientific data	Closed Book Examinations/Tests: • to examine knowledge and appreciation of key issues • to assess understanding of content and aims Practical Reports • to enable students to demonstrate practical proficiency and 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 as laid out in the HPC Standards of Proficiency. Project Report • to assess students' ability to plan and perform an independent research study and to analyse appropriately and critically review scientific data
2	Awareness of standards of conduct and performance appropriate to a professional Biomedical Scientist		
3	Awareness of the need for good laboratory practice, health and safety and ethical considerations in a Biomedical Science laboratory		
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 skills including data recording and record keeping CAL • to enable students to develop essential skills in IT literacy Project thesis • to enable students to plan and execute an independent research study and to analyse appropriately and critically review scientific data Poster presentations • to develop students' ability to communicate scientific information in the style of a conference poster Groups Tasks: • to enable students to solve problems and organise and manage group activities	Practical Reports • to assess students' ability to communicate scientific investigations in a clear and accurate manner CAL assessments • to assess students' ability to manipulat data, text and images in standard software and scientific packag Project reports • to assess students' ability to undertake and communicate scientific investigations in a clear and accurate manner • to assess numeracy skills and ability t evaluate experimental data Poster • To assess verbal and written communication skills Group Tasks • to assess students' ability to work effectively as a group Reflective logs • To assess reflective practice appropriate to continuing professional development
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 autonomous learning skills to sustain lifelong learning and continuing professional development.		

Entry Requirements	Students who gain a placement in an IBMS approved, CPA accredited NHS laboratory, which has been audited by Aston University, will normally transfer from the Biomedical Science programme onto the integrated Applied Biomedical Science degree programme at the end of Stage 2.

Programme Regulations	Attendance at all practicals and tutorials as well as specified lectures is mandatory and monitored by registry. 1. 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. 2. An aegrotat or otherwise compensatory award does not provide eligibility to apply to the Health Care Professions Council (HCPC) for registration as a Biomedical Scientist. 3. Transfer to an ordinary degree in Biomedical Science is not possible. 4. Placement does not contribute to the degree classification. 5. At least one external examiner appointed to the programme must be appropriately experience and qualified, and be from the relevant part of the HCPC register unless alternative arrangements have been agreed with the HCPC. **Components of assessment at level P** To be eligible for the award of 120 level P credits and to progress to the final stage of the programme students must: 1 Have placement reports from the Placement Tutor and from the lead Training Officer deemed as satisfactory by the Applied Biomedical Science Placement Examination Board. 2 Produce a reflective account of the placement experience in the form of a poster presentation 3 Complete the Institute of Biomedical Science (IBMS) Registration Portfolio and have it assessed by an IBMS external verifier appointed by Aston University who is aware of the learning outcomes of the programme. The Applied Biomedical Science Placement Examination Board will consider the report from the verifier in establishing whether this assessment component has been passed. **Failure in components of assessment at level P** Options in the event of failure If placement reports are deemed unsatisfactory by the Applied Biomedical Science Placement Board of Examiners then the student will be eligible to transfer to the final year of the 3-year Biomedical Science programme. There will be no option to repeat the placement. If the reflective account of the placement (Poster) fails to satisfy the Board of Examiners then the student shall be given a single opportunity to take a referred assessment in this component. If the referral is failed then the student will be eligible to transfer to the final year of the 3-year Biomedical Science programme.

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.