APPLICATION GUIDANCE DOCUMENT FOR NON-IBMS ACCREDITED DEGREE
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1. **Introduction**

1.1 This document provides guidance notes for the application process for assessment of academic qualifications that have not been formally accredited by the Institute of Biomedical Science (IBMS/the Institute). It details the requirements for the IBMS to be able to undertake the assessment, components of an accredited course and some information on the assessment process used to scrutinise all non-accredited academic qualifications. This is carried out in order to identify any deficiency against the academic requirements of the Health and Care Professions Council (HCPC) standards of proficiency.

1.2 All applications are assessed on the basis of the taught academic subject content and level of the qualification award. Applicants include individuals who hold non-accredited degrees in biomedical science(s), healthcare science, or other degrees with scientific content. Qualifications must be equivalent to BSc (hons) level or above, and may be from within the United Kingdom, or internationally within or outside of the European Union. (Please note that all overseas qualification applications must include an assessment against UK NARIC (United Kingdom National Academic Recognition Information Centre) criteria to provide a comparison to UK qualifications.)

1.3 Applicants are advised that their qualification(s) should include some core subjects at a level that is expected to be achieved in year one of any Biomedical Science degree. Core subjects include: Human Anatomy and Physiology, Biochemistry, Cell Biology, Molecular Biology and Genetics, Microbiology and Immunology. If very few of, or none of the core subjects are included then the degree assessment application is often returned to the applicant and no fee taken. This is because for these applicants the most efficient route to pursue HCPC registration would be to enrol on an accredited BSc (hons) degree in Biomedical Science and to request Accreditation for Prior Learning from the university.

1.4 Applicants are advised that if a qualification is not equivalent to an honours degree then the qualification will be rejected, and they will be required to complete an IBMS accredited BSc (Hons) degree.

1.5 Qualifications are assessed against the academic components described in the QAA Subject benchmark statement for biomedical sciences (2015) which are the basis of the taught elements on an IBMS accredited degree. [http://www.qaa.ac.uk/en/Publications/Documents/SBS-Biomedical-sciences-15.pdf](http://www.qaa.ac.uk/en/Publications/Documents/SBS-Biomedical-sciences-15.pdf) Applicants will receive their outcome within a maximum of three months.

1.6 Degree assessments are carried out by assessors who are familiar with the academic requirements for HCPC registered biomedical scientists, either as HCPC registrants or as academic staff closely associated with IBMS accredited biomedical science undergraduate degrees (e.g. programme leaders, IBMS/university liaison officers).
1.7 There are a number of possible outcomes;

<table>
<thead>
<tr>
<th>Assessment outcome:</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLICATION ACCEPTABLE: SUPPLEMENTARY EDUCATION NOT REQUIRED</td>
</tr>
<tr>
<td>APPLICATION PARTIALLY ACCEPTABLE: SUPPLEMENTARY EDUCATION REQUIRED FOR MODULES WHERE THE OVERALL ASSESSMENT OUTCOME IS “R” *</td>
</tr>
<tr>
<td>LARGE AMOUNT OF SUPPLEMENTARY EDUCATION REQUIRED: CANDIDATE MAY CONSIDER EITHER A FULL ACCREDITED DEGREE WITH ACREDITATION OF PRIOR EXPERIENTIAL LEARNING, DIPLOMA COMPRISING APPROPRIATE MODULES OR SEPARATE MODULES, DEPENDING ON UNIVERSITY MAPPING OF THE REQUIRED SUBJECTS *</td>
</tr>
<tr>
<td>FURTHER INFORMATION REQUIRED FOR ASSESSMENT: ASSESSMENT CANNOT BE COMPLETED BASED ON THE INFORMATION PROVIDED **</td>
</tr>
</tbody>
</table>

1.8 Applications that are missing core subjects, key laboratory specialities or the research project are advised on supplementary education requirements in order to achieve the equivalent to an IBMS accredited biomedical science degree.

1.9 Applicants will be advised on specific areas where their shortfall lies. Recognition of any prior learning would then be at the discretion of the university offering the individual entry to their accredited program.

2. Degree Assessment Application Form

For data protection purposes we require the application to be split into two distinct parts:

- Part A which should contain the personal information of the applicant and will remain within the IBMS database
- Part B which should contain the module content of the applicant’s qualification(s) and may be sent to external assessors or assessed internally. (It should be noted that for reasons of confidentiality and data protection, personal information of the applicant is not made available to external assessors.) A copy of the degree transcript detailing which modules have been passed, failed and compensated. All applicant’s details are to be redacted.
2.1 For Part A Applicants are required to provide:

- Completed application form (please refer to this for current requirements).
- Copy of degree certificate(s) to confirm the name of the award. If applicants have passed their degree but not received the degree certificate, we will require confirmation of the degree award (i.e. a letter from the university on headed notepaper). If they are currently enrolled on a degree programme, we will not assess the degree until they are able to confirm the degree award and provide a list of modules that have been passed.
- Photocopy of either birth certificate or the personal details section of applicant’s passport.
- Photocopy of any change of name (if certificates list any previous names, e.g. maiden name)
- Photocopy of UK NARIC (www.uknaric.org/uk) comparability for non-UK qualification(s). This should equate to UK honours degree standard. (To note: some designate the comparability to UK degree standard which is accepted provided there is evidence of an appropriate research project).
- Cheque or postal order made payable to the IBMS or
- Indicated preference to pay by debit or credit card (For the data protection of the applicant we do not accept card details submitted on the application form or by email. After the application has been screened, we will contact the applicant to obtain the necessary card details to enable us to take payment.)

Please note:
There is a requirement by the HCPC for potential registrants to have had a Disclosure and Barring Service check prior to acceptance onto the register. In laboratories training individuals towards the IBMS Certificate of Competence Registration Training Portfolio, a senior member of staff (usually laboratory manager) must ensure that potential HCPC registrants are able to meet the requirements for registration with regard to health and Criminal Conviction/ Disclosure and Barring Service checks. Checks must be carried out on each trainee and a declaration must be made by them at the point of application for the Registration Training Portfolio. If this check raises an issue which may affect the Trainee’s eligibility to become registered, the senior member of staff should formally discuss this with the trainee, document the discussion and guide the trainee to seek advice from the HCPC at that point. A portfolio will not be released unless the IBMS receive a declaration to say that this process has been followed. A declaration from the trainee will be required at the end point, following verification, which states that there have been no changes to their health or DBS check during the training period and that they do not know of any reason which might affect their eligibility to apply to become registered.
For Part B Applicants are required to provide:

Subject specific content** for each of the modules listed as a pass on the academic transcript that are to be assessed.

** This information is usually referred to as module descriptor or module definition form. They should contain details of the curriculum and learning outcomes such as the information described in Appendix 2. If official module descriptors are not available, alternatives must be substantiated with the university stamp. Sufficient detail of what has been studied is essential if the assessment is to take place. Module descriptors / definition forms need to be identifiable as a university document. This means they must have the university name and/or logo on the documentation. If this is not present and the information is printed on plain sheet of paper, the university will be required to stamp the documentation to verify the authenticity of the information provided. This is to ensure a true and accurate account of study is provided.

2.2 Part A, the application form and associated documents containing personal information, should be completed electronically and submitted as a single document. Part B, containing the transcript with redacted personal data, the module descriptors, should be included as a separate single document (usually PDF) attached to the same email. The pages of this part should be in the order in which they appear in the transcript, correctly orientated for easy viewing and clear.

3. Assessment Process

3.1 Initial screening of applications is carried out by the Education Team. If the application is incomplete or requires further information, the applicant will be contacted to complete their application before any payment is processed.

3.2 The Education Team will check the following:
• All required documents are present (refer to section 2 of this document)
• Award information including title of award, awarding institution, date of award, level of award, module titles and module identification codes are consistent and accurate across the documentation provided
• UK NARIC assessment of comparability to UK award (if applicable).
• Applicant can be identified by the scanned copies of identification documents submitted
• Module specific content contains sufficient detail of the curriculum and learning outcomes (refer to section 2 of this document)

3.3 The academic assessments will be carried out electronically by a pair of trained assessors.
3.4 The assessment will determine whether or not the academic profile has sufficient depth and breadth of the subject areas or whether there are deficiencies that require further academic study. Subject areas are based on Appendix 1 The QAA subject benchmark statement for biomedical sciences (2015) and Appendix 2 which describes examples of an indicative curriculum in more detail.

3.5 The assessor must make a reasoned judgement to assess the content of the qualification(s) against the QAA subject benchmark statement for biomedical sciences (2015) using Appendix 2 as a guide. Some sub-topics may not be covered or the depth in some areas may not be to the depth described but it is the assessor’s responsibility to judge that the subject/overall topic has been covered to an equivalent level based on information and the application of experience. For example, if a subject area is covered at specialist subject level then the inference would be that the basic knowledge must have been covered.

3.6 Outcomes of the assessment process:
A. Acceptance of the qualification(s) without the requirements for further academic study. If the assessor does not identify any areas where supplementary education is required, the qualification is accepted.

B. Acceptance of the qualification(s) subject to supplementary education to make up a deficit in subject knowledge.
   i. If the assessor identifies areas of academic knowledge where supplementary education is required, the qualification is accepted subject to this requirement.
   ii. If a large amount of supplementary education is required, the suggestion would be that the applicant considers enrolling on an accredited degree but requesting Accreditation for Prior Learning from the university. (See section 4)

C. Applications may be returned to the applicant without payment being processed if the qualification(s) are below the academic level commensurate with an honours degree (for example a Certificate of Medical Laboratory Practice) or if there is a significant lack of core and key subject areas, rendering the majority of the degree not relevant to biomedical science.

D. Further information required for assessment. If information pertaining to the taught subjects is insufficient to make a reasoned judgement, the assessor must request further information from the applicant (via the IBMS Education Team) in order to complete the assessment process.

3.7 Applicants from outcomes A) and B) are informed of the outcome of the assessment process (with identification of shortfall where necessary) by letter. They will be made aware of the requirement to complete the IBMS registration portfolio as a record of training for the award of the Certificate of Competence, in order to become eligible to apply to the HCPC for registration. Applicants from outcome C) are advised of the requirement for them to gain an IBMS accredited degree in addition to completing their registration portfolio.
3.8 All applicants have the right of appeal. Appeals will be considered on the basis of additional information being provided or evidence-based challenges to the decision-making process. In the case of an appeal a third assessor, usually a senior, experienced member of the Education Department, will review the original assessments. All appeals must be made in writing to the IBMS within 8 weeks clearly stating the academic topics for appeal and why. Evidence to support the appeal should also be attached.

4 Supplementary Study

4.1 If the applicant is required to undertake supplementary study (top-up modules) in order to meet the HCPC academic standards of proficiency these requirements can be achieved through studying appropriate modules from an IBMS accredited undergraduate or postgraduate programme (see: www.ibms.org/qualifications/accredited-degrees). The IBMS will not provide advice on which university provides the opportunity to undertake top-up modules. Applicants will need to approach an accredited university to discuss their options.

4.2 Upon completion of the identified supplementary education, the university will need to provide the applicant with a letter that states that they have successfully completed the supplementary education to the required level for registration with the Health and Care Professions Council (HCPC) as a biomedical scientist. The applicant will need to provide this letter when their training officer applies for the verification of their IBMS Registration Training Portfolio.

4.3 The IBMS does not provide any form of funding for supplementary education and applicants will need to speak with the university with regards to the duration and costs of the modules. In order to determine the appropriate modules, the university may wish to map the qualification against the IBMS accredited programme and this may incur a further fee.
APPENDIX 1: QAA Subject Benchmark Statement for Biomedical Sciences (2015)

The following has been adapted from section 4, 5 and 6 of the benchmark statement.

Biomedical sciences programmes generally include:

i) Human anatomy and physiology: the structure, function, neurological and hormonal control of the human body, its component parts and major systems (musculoskeletal, circulatory, respiratory, digestive, renal, urogenital, nervous, endocrine) and their relationship to each other.

ii) Cell biology: the structure and function of prokaryotic and eukaryotic cells; the cell as the fundamental unit of life; cell division, cell cycle, stem cells, cell specialisation and cooperation.

iii) Biochemistry: key chemical principles relevant to biological systems, the structure and function of biological molecules and the biochemistry of processes which support life including cellular metabolism and its control.

iv) Genetics, genomics and human variation: the structure and function of genes, the principles of their inheritance, genetic disorders with particular biomedical significance, evolution and population biology.

v) Molecular biology: the structure and function of biologically important molecules including DNA, RNA and proteins and the molecular events that govern cell function. Molecular biology overlaps with biochemistry, genetics and cell biology.

vi) Bioinformatics and systems biology: the computation of high volumes of biological data and the properties of a network of interacting components in a system, as well as the components themselves, including an appreciation of the algorithms to decipher biological relationships.

vii) Microbiology: the structure, physiology, biochemistry, identification, classification and control of micro-organisms, including the roles of normal flora.

viii) Immunology: acute and chronic inflammation, structure, function and mechanisms of action of the components of the immune system; innate and acquired immunity.

Subject-specific knowledge, understanding and skills in Biomedical Science:

Within the broader biomedical sciences are clinical laboratory subjects that specifically address the knowledge and understanding of disease processes in the context of the study and investigation of those processes.

Cellular pathology is the microscopic examination of normal and abnormal cells (cytopathology), and tissues (histopathology) for indicators of disease.

A biomedical science graduate will have a knowledge of:
• the gross structure and ultrastructure of normal cells and tissues and the
• structural changes which may occur during disease
• reproductive science, including infertility and embryology
• the preparation of cells and tissues for microscopic examination
• the principles and applications of visualisation and imaging techniques, including
• microscopy, to aid diagnosis and treatment selection.

Clinical biochemistry is the investigation of the function and dysfunction of systems, organs and tissues by the measurement of biochemical markers. A biomedical science graduate will have knowledge of:

• the range, and methods used for the collection of, clinical samples that may be
• subjected to biochemical analysis
• the principles and applications of biochemical investigations used for screening, diagnosis, treatment and monitoring of disease
• therapeutic drug monitoring and investigation of substance abuse.

Clinical genetics is the identification of genetic mutations and polymorphisms and their influence on disease processes. A biomedical science graduate will have knowledge of:

• genomic, transcriptomic, proteomic methods used to analyse and study human
• chromosomes and DNA
• the application of molecular biology and Bioinformatics in medicine
• pharmacogenetics and personalised medicine
• genetic testing and associated ethical issues.

Clinical Immunology is the study of immunopathological conditions and abnormal immune function. A biomedical science graduate will have knowledge of:

• the principles of the function and measurement of effectors of the immune
• response
• the causes and consequences of abnormal immune function, neoplastic
• diseases and transplantation reactions together with their detection, diagnosis,
• treatment and monitoring
• immunological techniques used in clinical and research laboratories
• prophylaxis and immunotherapy.

Haematology is the study and investigation of the different elements that constitute blood in normal and diseased states. A biomedical science graduate will have knowledge of:

• the structure, function and production of blood cells
• the regulation of normal haemostasis
• nature and diagnosis of anaemias, haematological malignancies, haemorrhagic
• and thrombotic diseases
• techniques for their investigation.

Transfusion science is the identification of blood group antigens and antibodies
which ensures a safe supply of blood and blood components. A biomedical science graduate will have knowledge of:

- the genetics, inheritance, structure and role of red cell antigens
- immune mediated destruction of blood cells
- the preparation, storage and use of blood components
- the selection of appropriate blood components for transfusion and possible adverse effects.

Medical microbiology is the study and investigation of pathogenic microorganisms. A biomedical science graduate will have knowledge of:

- the pathogenic mechanisms of a range of microorganisms
- public health microbiology
- the laboratory investigation of a range of infectious diseases, including isolation and identification of microorganisms
- anti-microbial and anti-viral therapy (including drug resistance)
- infection control.

**Research Skills**

Biomedical sciences graduates should be able to:

i. Prepare, process, interpret and present data, using appropriate qualitative and quantitative techniques, statistical programmes, spreadsheets and programmes for presenting data visually;

ii. Demonstrate an understanding of statistical significance and statistical power;

iii. Solve problems by a variety of methods, including the use of appropriate software;

iv. Evaluate published claims by interpreting methodology and experimental data and make judgements about the strength of the evidence.
Appendix 2: Examples of Indicative Curriculum

This section is to illustrate the range of topics covered under each subject heading. The list is not exhaustive and some topics may be covered in more depth/breadth then others.

Human anatomy and physiology:

Structure, tissue types and organisation of principal body systems.
Digestive system: gastrointestinal tract and accessory organs, digestive processes.
Cardiovascular system: heart and vessels, conduction system, cardiac cycle, homeostasis control, lymphatic vessels and tissues.
Respiratory system: respiration and its control, gas exchange and transport.
Urinary system: physiological role, regulation and control.
Reproductive system: Male and female reproductive tract, control of reproductive functions.
Sensory system: Receptors, pain, vision, hearing, equilibrium, taste, smell.
Central and peripheral nervous system.
Endocrine system: endocrine glands, hormonal mechanisms of action, physiological role of pituitary, pineal, thyroid, parathyroid, adrenal, pancreas and sex hormones.
Muscular system, muscle contraction.
Integumentary system: skin, accessory organs.
Skeletal system: bone, joints, ligaments.

Biochemistry

Biomolecules: lipids, carbohydrates, proteins, nucleic acids and their structures, properties and function within living organisms. Role of enzymes in catalysis, enzyme deficiency, bioenergetics, catabolism and anabolism.
Protein metabolism: protein turnover, hydrolysis of proteins, degradation of amino acids, urea cycle.
Integration of metabolic pathways and their regulation.
Cell biology

Basic structure and function of prokaryotic and eukaryotic cells; membrane structure and support systems, structure and function of the nucleus, ribosomes, endoplasmic reticulum, Golgi body, lysosomes, mitochondria. Stem cells, cell cycle and cell division. Mitosis and meiosis. Cell specialisation.

Molecular Biology and Genetics

Mendel’s laws of inheritance, genotype, phenotype, dominance, sex-linked variation, Genetic inheritance patterns, autosomal and sex-linked genes. Blood group inheritance, population genetics, cytogenetics, chromosomal abnormalities. Genomes, nuclear DNA, mitochondrial DNA. Gene expression, gene structure and regulation in prokaryotes and eukaryotes. Molecular biology overlaps with biochemistry, genetics and cell biology. Bioinformatics and systems biology: the computation of high volumes of biological data and the properties of a network of interacting components in a system, as well as the components themselves, including an appreciation of the algorithms to decipher biological relationships.

Microbiology:


Immunology:

Organisation and components of the human immune system; Structure, function and mechanisms of action. Innate and acquired immunity including acute and chronic inflammation, phagocytosis, complement and wound healing. Memory and specificity, antigens and antibodies, molecular immunology.
Subject-specific knowledge, understanding and skills in Biomedical Science:

This section is to illustrate the range of topics covered under each subject heading. The list is not exhaustive, and some topics may be covered in more depth/breadth than others. The emphasis is on clinical laboratory techniques used to investigate, diagnose and monitor treatment of disease.

Cellular pathology
Microscopic examination of normal and abnormal cells (cytopathology), and tissues (histopathology). Gross structure and ultrastructure of normal cells and tissues and the structural changes which may occur during disease. Reproductive science, including infertility and embryology.
Preparation of cells and tissues for microscopic examination, including fixation, dehydration, impregnation and embedding. Tissue sectioning (microtomy), basic staining techniques and visualisation techniques including molecular cytological and immunochemistry techniques. Principles and application of microscopy for diagnosis of disease.

Clinical biochemistry
Use of clinical biochemistry in the laboratory investigation of the function and dysfunction of systems, organs and tissues by the measurement of biochemical markers.
Interpretation of clinical data.
Sample selection, quality assurance, near patient testing, manual and automated methods of investigation of disorders of:
Plasma lipids and lipoproteins;
Carbohydrate metabolism e.g. diabetes, inherited metabolic disorders;
Liver disorders, liver function tests; biochemistry of liver diseases;
Renal function tests, assessment of renal failure, sodium/potassium measurement;
Gastrointestinal tract disorders, digestion and disorders of absorption, pancreatic disease.
Disorders of calcium, phosphate and magnesium metabolism.
Role of plasma proteins, plasma protein abnormalities, immunoglobulins, tumour markers;
Clinical enzymology, measurement of plasma enzymes in diagnosis;
Endocrinology (clinical biochemistry abnormalities of thyroid, adrenal, hypothalamus, pituitary, gonads;
Clinical biochemistry measurements in nutrition, investigation of vitamin/trace elements deficiencies;
Clinical biochemistry of pregnancy and lactation, pregnancy tests, prenatal diagnosis of birth defects, postnatal screening test.
Inborn errors of metabolism and hereditary diseases (phenylketonuria, glycogen storage disease, cystic fibrosis, genetic and biochemical basis of inherited disease, mass screening;
Therapeutic drug monitoring (TDM), drugs of abuse and toxicology.
Clinical Genetics

Principles and application of DNA sequencing, DMA microarrays relevance to targeted gene expression and function analysis in health and disease; Genomic, transcriptomic and proteomic methods used to analyse and study human chromosomes and DNA; Application of molecular biology and bioinformatics in medicine; Pharmacogenetics and personalised (stratified) medicine; Phenotypic changes in gene expression (epigenetics) in health and disease; Genetic testing and associated ethical issues.

Clinical Immunology

Techniques used in the laboratory investigation of immunopathological conditions and abnormal immune function (immunoassays, haemagglutination, ELISA, tissue typing, functional assays. Lymphocyte activation, control and measurement of soluble immunoregulators (cytokines, interleukins, chemokines). Investigation of immune dysfunction: hypersensitivity, non-organ and organ specific autoimmunity (MHC, rheumatoid, thyroid, coeliac, pernicious anaemia, diabetes), immunodeficiency: complement, primary (T, B and NK cell, secondary (HIV). Transplantation, rejection, solid organs, bone marrow; Cancer: tumour antigens, immunosurveillance, evasion; Defence against infection, immunotherapy, prophylaxis.

Haematology

Study and laboratory investigation of the different elements that constitute blood in normal and diseased states, manual and automated methods of investigations: cell identification and counting, haemoglobin variants, coagulation tests. Blood cell formation, haemopoiesis; Red cell metabolism, disorders of red cells; Haemoglobin biosynthesis, function, nature and diagnosis of anaemias, haemoglobinopathies, thalassaemias; Haemostasis, platelet structure and function, coagulation, fibrinolysis, thrombosis, coagulation therapy; Leucocyte structure and function, haematological malignancies, classification and treatment;

Transfusion Science

Main blood group systems, genetics and inheritance, structure and role of red cell antigens, blood group antibodies; Effective blood bank practice and component preparation/storage/provision; Adverse transfusion reactions, immune mediated destruction of blood cells, haemolytic disease of the newborn.
Medical Microbiology

Biology of pathogenic micro-organisms. Examples of infectious diseases could be tuberculosis, streptococcal disease, influenza, hospital acquired (nosocomial) infections; Overview of infections: gastrointestinal tract, respiratory tract, sexually transmitted infections, Epidemiology and public health microbiology: water, food and other environmental pathogens, sources of infection, spread of disease, disease control;
Normal internal and external flora of the human body;
Microbiological hazards and risk assessment;

Diagnostic microbiology and virology: collection and preservation of samples, aseptic techniques, enumeration, isolation and identification;
Infection control: antifungals, antivirals, and antibacterial antibiotics, antibiotic resistance.

Research Skills

These should include:

1. Research design, methodologies, planning and execution of hypothesis-based research, scientific writing;
2. Generation, recording, collation and statistical packages for data analysis;
3. Critical evaluation, problem-solving, use of primary or secondary data to reach a coherent conclusion, and presentation of results.
4. A Research Project: This should be honours level independent project and can be a lab, meta-analysis or bioinformatics type project but not a literature review.

Evidence should be a module descriptor and an abstract, contents page or extracted methods & results, which demonstrate the application of the skills gained during the assessed research module studied: experiments, report, interpret and presentation of data using scientific convention, including application of SI units and other units used in biomedical science).
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