Version 3

PROGRAMME SPECIFICATION FOR CERTIFICATE OF COMPETENCE

BY EQUIVALENCE (BIOMEDICAL SCIENTIST)

INSTITUTE OF BIOMEDICAL SCIENCE

PROGRAMME SPECIFICATION FOR CERTIFICATE OF COMPETENCE BY EQUIVALENCE (BIOMEDICAL SCIENTIST)

Title of Programme:	Certificate of Competence by Equivalence (Biomedical Scientist): Degree with Experiential Learning
Award:	Certificate of Competence by Equivalence (Biomedical Scientist)
Awarding Body:	Institute of Biomedical Science
Mode of Study:	Flexible
Site for Delivery:	Flexible
Entry Requirements:	Minimum of a Bachelor Honours Degree or Equivalent
Programme intended Learning Outcomes:	Health and Care Professions Council Standards of Proficiency for Biomedical Scientists
Professional Body Standards:	QAA Subject Benchmark Statement for Biomedical Science November 2015 IBMS Degree Accreditation Criteria Assessment Standards for Non-Accredited Degrees Clinical Laboratory Standards for IBMS Qualifications IBMS Registration Equivalence Portfolio
Statutory Regulating Body:	Health and Care Professions Council
Proposed Start Date:	September 2015

1. Context of the Award

1.1 Biomedical scientists are required to register with the Health and Care Professions Council (HCPC), which is the statutory regulatory body, created under the 1999 Health Act.

1.2 In July 2003, the Privy Council approved the HCPC standards of proficiency for safe and effective practice of registrant biomedical scientists. The standards have been subsequently reviewed by the HCPC and revised standards were first published with effect from November 1st 2007 and more recently December 2014.

1.3 The role of the Institute of Biomedical Science (the Institute/ IBMS) in this process has been as an awarding body for the Certificate of Competence, by which individuals can evidence that they have met the competency required of the HCPC standards of proficiency for biomedical scientists, are 'fit to practice' as biomedical scientists and are therefore eligible to apply for statutory registration with the HCPC.

1.4 The IBMS has, since 2010, been approved by the HCPC to award the Certificate of Competence for completion of one of the three possible routes that enable individuals to be eligible to apply for HCPC registration as a biomedical scientist.
These are:

I. Certificate of Competence (accredited degree containing the Registration Training Portfolio)

II. Certificate of Competence (accredited degree followed by the Registration Training Portfolio)

III. Certificate of Competence (Non-accredited degree followed by the Registration Portfolio)

Routes I and II rely on the completion of an IBMS accredited degree and are therefore seen as standard routes into the profession, being inextricably linked to the QAA subject benchmark statement for biomedical science which is represented by HCPC standards of proficiency related to profession specific knowledge.

Route III is for graduates with non-biomedical science degrees or non-IBMS accredited biomedical science degrees and provides a route of academic equivalence to the accredited degree: individuals with these degrees are likely to require supplementary study of specified undergraduate modules from an IBMS accredited degree in order to meet the equivalence of an accredited biomedical science degree and the academic content required by the HCPC standards of proficiency.

1.5 A new route now exists to provide graduates with a completion award of a Certificate of Competence by Equivalence (Biomedical Scientist) in order to be eligible to apply to the HCPC for registration as a biomedical scientist. This will enable individuals with

non-accredited qualifications and laboratory training to reflect the additional experience gained through practice at a level and duration greater than that normally achieved through pre-registration training and commensurate with that of a registered biomedical scientist.

1.6 In addition, it is proposed that any supplementary education required to ensure that the academic requirements for HCPC registration are met is provided in a flexible manner, tailored to individual requirements.

Aims of the Programme and Distinctive Features/Fit with Existing Provision

1.7 The IBMS has until now been approved by the HCPC to award a Certificate of Competence to those candidates who have met the HCPC standards of proficiency (SoPs) for biomedical scientists by completing: an accredited degree with an integral registration training portfolio; an accredited degree followed by the registration training portfolio; or a non-accredited degree followed by the registration training portfolio and which may require additional academic education.

1.8 The IBMS values the standards of proficiency for biomedical scientists and recognises the importance of these being applied to any situation where investigative techniques relevant to biomedical science impact directly on patient healthcare. It was felt a mechanism should exist for experienced practitioners to demonstrate eligibility to apply for HCPC registration without undertaking one of the aforementioned approved programmes.

1.9 Applicants for the Certificate of Competence by Equivalence are experienced individuals, working beyond the level of registration in areas of biomedical science practice that have not required them to take the standards routes of education and training that would give them eligibility to apply for HCPC registration as a biomedical scientist. Typical candidates would be working in routine diagnostic laboratories such as genetics/cytogenetics, andrology and embryology/fertility departments that are not part of the usual clinical pathology service but their role is comparable to that of a biomedical scientist (albeit under a different title). Whilst statutory regulation is considered desirable, requiring these individuals to undertake basic education and training for the current Certificate of Competence is not deemed appropriate. They have already proven their competence to work beyond this threshold level and have the potential to evidence they meet the majority or all of the HCPC standards of proficiency for biomedical scientists through education and training they have already undertaken.

1.10 The Certificate of Competence by Equivalence (Biomedical Scientist) programme is intended for individuals with a bachelor honours degree or equivalent and extensive professional experience. It differs from the three established programmes in that the assessment against HCPC standards of proficiency for biomedical scientists will recognise experiential learning as contributing to the academic knowledge and specific training required to meet these standards. Individuals that meet the requirements will be awarded a Certificate of Competence by Equivalence (Biomedical Scientist).

1.11 So as not to cause confusion with the HCPC's overseas applicants, the applicants for the Certificate of Competence by Equivalence (Biomedical Scientist) will only be considered from practitioners in biomedical science working in the UK.

2. Rationale for Proposal

2.1 HCPC standards of education (SET 1.1) state that the HCPC Council "normally expects that the threshold entry route to the register for biomedical scientists will be: Batchelor degree with honours with the Certificate of Competence awarded by the Institute of Biomedical Science, or equivalent."

2.2 In the context of education, training, qualifications and experience, equivalence is said to exist when the outcomes of two processes are directly comparable even though the paths to achieving them are different. When equivalence is shown to exist between an accepted qualification and the alternative qualification and/or experience a person already has, further supplementary education or training is unnecessary.

2.3 This experiential pathway provides an opportunity for experienced practitioners who are not currently regulated to have their qualifications and experience recognised (this may be in full, or in part and requiring further training) in order to give them eligibility to apply for registration with the HCPC as a biomedical scientist.

2.4 Applicants will be expected to have a bachelor degree with honours (or equivalent level of qualification) and experience of autonomous professional practice (i.e. beyond the comparable threshold level for registration).

2.5 To successfully complete the programme, applicants will be expected to be able to demonstrate they have met the threshold standards of knowledge and skills defined in the QAA subject benchmark statement for biomedical science and the HCPC standards of proficiency for biomedical scientists (December 2014). Evidence of this will be mapped against the IBMS Registration Equivalence Portfolio. Applicants will also have a *viva voce* with an assessment panel to confirm their eligibility for the award of Certificate of Competence by Equivalence (Biomedical Scientist).

2.6 Upon award of the Certificate of Competence by Equivalence (Biomedical Scientist) individuals will be eligible to apply to the HCPC for registration as a biomedical scientist. This approach will give graduates of the programme the correct foundation for future employment as a biomedical scientist in their current role and beyond.

3. Curriculum Design and Content

3.1 Curriculum design and content is standardised through the following processes that exist for three HCPC approved programmes currently offered by the Institute:

- IBMS processes for the accreditation of degrees: criteria and standards of academic teaching provide the basis for measuring equivalence

- Work-based clinical laboratory training in an Institute approved laboratory: criteria and standards provide the basis for measuring equivalence
- Completion and assessment of the IBMS Registration Equivalence Portfolio which is directly linked to the HCPC standards of proficiency for biomedical scientists

3.2 The curriculum content must equate to achievement of the HCPC standards of proficiency for biomedical scientists as designated in the IBMS Registration Equivalence Portfolio. The HCPC standards are organised into discrete modules and divided into knowledge and competence learning outcomes against which the individual is assessed. This requires individuals to demonstrate they have achieved threshold standards of academic learning, professional skills and the application of these in professional practice.

3.3 Applicants have the flexibility to select and present evidence as appropriate to their work-based setting but appropriate evidence must be produced in the form of academic qualifications, CPD, clinical case studies, research and other specific pieces of work relevant to the standards and across the wider biomedical science disciplines.

3.4 The IBMS Registration Equivalence Portfolio is based on the revised standards of proficiency for biomedical scientists that the HCPC published in December 2014. Due to the overlapping nature of some standards of proficiency, individual standards have been grouped into modules that relate to areas of practice under two sectional headings: Professional Conduct; Professional Skills and Standards.

Professional Conduct

This is core to the principles of fitness to practice and is defined by standards that relate to professional roles and conduct.

- Module 1: Personal Responsibility and Development
- Module 2: Equality and Diversity
- Module 3: Communication
- Module 4: Patient Records and Data Handling
- Module 5: Professional Relationships

Professional Skills and Standards

This is core to applicants being expected to show they have the skills required to practice as a Biomedical Scientist.

- Module 1: Application of Professional Knowledge
- Module 2: Health and Safety
- Module 3: Quality
- Module 4: Performing Standard Investigations
- Module 5: Research and Development

3.5 Professional Conduct

Applicants will be expected to demonstrate they have met the knowledge and skills in the following table which maps to the HCPC standards of proficiency in the IBMS Registration Equivalence Portfolio.

Table 1 Professional Conduct

Professional Conduct	**Knowledge**	**Skills**
Module 1: Personal Responsibility and Development	1. Know the limits of their practice and when to seek advice or refer to another professional (HCPC SoP 1.1) 2. Recognise the need to manage their own workload and resources effectively and be able to practice accordingly (HCPC SoP 1.2) 3. Understand the need to act in the best interests of service users at all times (HCPC SoP 2.1) 4. Understand what is required of them by the Health and Care Professions Council (HCPC SoP 2.2) 5. Understand the need to respect and uphold the rights, dignity, values and autonomy of service users including their role in the diagnostic and therapeutic process and in maintaining health and wellbeing (HCPC SoP 2.3) 6. Recognise that relationships with service users should be based on mutual respect and trust (HCPC SOP 2.4) 7. Know about the current legislation applicable to the work of their profession (HCPC SoP 2.5) 8. Be aware of the British, European and International	a) Practice safely and effectively within their scope of practice (HCPC SoP 1) b) Practice within the legal and ethical boundaries of their profession (HCPC SoP 2) c) Maintain high standards of care even in situations of personal incompatibility (HCPC SoP 2.4) d) Obtain informed consent (HCPC SoP 2.7) e) Exercise a professional duty of care (HCPC SoP 2.8) f) Maintain fitness to practice (HCPC SoP 3) g) Practice as an autonomous professional, exercising their own professional judgement (HCPC SoP 4) h) Assess a professional situation, determine the nature and severity of the problem and call upon the required knowledge and experience to deal with the problem (HCPC SoP 4.1) i) Make reasoned decisions to initiate, continue,

Professional Conduct	Knowledge	Skills
	Standards that govern and affect pathology laboratory practice (HCPC SoP 2.6) 9. Understand the importance of obtaining informed consent (HCPC SoP 2.7) 10. Understand the need to maintain high standards of personal and professional conduct (HCPC SoP 3.1) 11. Understand the importance of maintaining their own health (HCPC SoP 3.2) 12. Understand both the need to keep skills and knowledge up to date and the importance of career-long learning (HCPC SoP 3.3) 13. Recognise that they are personally responsible (HCPC SoP 4.4) 14. Understand the importance of participation in training, supervision and mentoring (HCPC SoP 4.6) 15. Understand the value of reflection on practice and the need to record the outcome of such reflection (HCPC SoP 11.1)	modify or cease treatment or the use of techniques or procedures, and record the decisions and reasons appropriately (HCPC SoP 4.2) j) Initiate resolution of problems and be able to exercise personal initiative (HCPC SoP 4.3) k) Justify their decisions (HCPC SoP 4.4) l) Make and receive appropriate referrals (HCPC SoP 4.5) m) Reflect on and review practice (HCPC SoP 11) n) Change their practice as needed to take account of new developments or changing contexts (HCPC SoP 14.1)
Module 2: Equality and Diversity	1. Be aware of the impact of culture, equality and diversity on practice (HCPC SoP 5) 2. Understand the requirements to adapt practice to meet the needs of different groups and individuals (HCPC SoP 5.1)	a) Practice in a non-discriminatory manner (HCPC SoP 6)
Module 3: Communication	1. Understand how communication skills affect assessment of, and	a) Communicate effectively (HCPC SoP 8)

Professional Conduct	Knowledge	Skills
	engagement with, service users and how the means of communication should be modified to address and take account of factors such as age, capacity, learning ability and physical ability (HCPC SoP 8.3) 2. Be aware of the characteristics and consequences of verbal and non-verbal communication and how this can be affected by factors such as age, culture, ethnicity, gender, socio-economic status and spiritual or religious beliefs (HCPC SoP 8.6) 3. Understand the need to provide service users or people acting on their behalf with the information necessary to enable them to make informed decisions (HCPC SoP 8.7) 4. Understand the need to assist the communication needs of the service users such as through the use of an appropriate interpreter, whenever possible (HCPC SoP 8.8) 5. Recognise the need to use interpersonal skills to encourage the active participation of service users (HCPC SoP 8.9)	b) Communicate in English to the standard equivalent to level 7 of the International English Language testing System, with no element below 6.5 (HCPC SoP 8.1) c) Demonstrate effective and appropriate verbal and non-verbal skills in communicating information, advice, instruction and professional opinion to service users, colleagues and others (HCPC SoP 8.2) d) Communicate the outcomes of biomedical procedures (HCPC SoP 8.4) e) Select, move between and use appropriate forms of verbal and non-verbal communication with service users and others (HCPC SoP 8.5) f) Use information and communication technologies appropriate to their practice (HCPC SoP 14.34)
Module 4: Patient Records and Data Handling	1. Understand the importance of maintaining confidentiality (HCPC SoP 7) 2. Be aware of the limits of the concept of confidentiality (HCPC SoP 7.1) 3. Understand the principles of information governance and be aware of the safe and effective	a) Maintain confidentiality (HCPC SoP 7) b) Maintain records appropriately (HCPC SoP 10) c) Keep accurate, comprehensive and comprehensible records in accordance with

Professional Conduct	Knowledge	Skills
	use of health and social care information (HCPC SoP 7.2) 4. Recognise and respond appropriately to situations where it is necessary to share information to safeguard service users or the wider public (HCPC SoP 7.3) 5. Recognise the need to manage records and all other information in accordance with applicable legislation, protocols and guidelines (HCPC SoP 10.2) 6. Understand the risks and possible serious consequences of errors and omissions in both requests for, and results of, laboratory investigations (HCPC SoP 10.3) 7. Understand the need to adhere to protocols of specimen identification, including bar coding and electronic tag systems (HCPC SoP 10.5) 8. Understand the importance of backup storage of electronic data (HCPC SoP 10.6)	applicable legislation, protocols and guidelines (HCPC SoP 10.1) d) Recognise and communicate the risks and possible serious consequences of errors and omissions in both requests for, and results of, laboratory investigations (HCPC SoP 10.3) e) Use systems for the accurate and correct identification of patients and laboratory specimens (HCPC SoP 10.4)
Module 5: Professional Relationships	1. Understand the need to build and sustain professional relationships as both an independent practitioner and collaboratively as a team member (HCPC SoP 9.2) 2. Understand the need to engage service users and carers in planning and evaluating diagnostics, treatments and interventions to meet their needs and goals (HCPC SoP 9.3) 3. Be aware of the impact of pathology services on the	a) Work appropriately with others (HCPC SoP 9) b) Work, where appropriate, in partnership with service users, other professionals, support staff and others (HCPC SoP 9.1) c) Contribute effectively to work undertaken as part of a multi-disciplinary team (HCPC SoP 9.4) d) Gather information,

Professional Conduct	Knowledge	Skills
	patient care pathway (HCPC SoP 9.5) 4. Recognise the role of other professions in health and social care (HCPC SoP 13.3) 5. Understand the structure and function of health and social care services in the UK (HCPC SoP 13.4) 6. Understand the concept of leadership and its application to practice (HCPC SoP 13.5)	including qualitative and quantitative data, that helps to evaluate the responses of service users to their care (HCPC SoP 12.2)

3.6 Profession Specific Academic Subjects

Applicants will be expected to demonstrate they have met the knowledge and skills in the following table which maps to the HCPC standards or proficiency in the IBMS Registration Equivalence Portfolio.

Table 2 Professional Skills and Standards

Professional Skills	Knowledge	Skills
Module 1: Application of Professional Knowledge	1. Understand the key concepts of the knowledge base relevant to their profession (HCPC SoP 13) 2. Understand the structure and function of the human body, together with knowledge of health, disease, disorder and dysfunction relevant to their profession (HCPC SoP 13.1) 3. Be aware of the principles and application of scientific enquiry, including the evaluation of treatment efficacy and research process (HCPC SoP 13.2) 4. Understand the theoretical basis of, and the variety of approaches to, assessment and intervention (HCPC SoP 13.6)	a) Draw upon appropriate knowledge and skills to inform practice (HCPC SoP 14) b) Demonstrate operational management of laboratory equipment to check equipment is functioning within its specifications and respond appropriately to abnormalities (HCPC SoP 14.14) c) Formulate specific and appropriate management plans including setting of timescales (HCPC SoP 14.17)

Professional Skills	Knowledge	Skills
	5. Demonstrate knowledge of underpinning scientific principles of investigation provided by clinical laboratory services (HCPC SoP 13.7) 6. Understand the role of the following specialisms in the diagnosis, treatment and management of disease: cellular science, blood science, infection science, molecular and genetic science and reproductive science (HCPC SoP 13.8)	d) Gather appropriate information (HCPC SoP 14.18) e) Select suitable specimens and procedures relevant to patients' clinical needs, including collection and preparation of specimens as and when appropriate (HCPC SoP 14.19) f) Select and use appropriate assessment techniques (HCPC SoP 14.20) g) Undertake and record a thorough, sensitive and detailed assessment, using appropriate techniques and equipment (HCPC SoP 14.21) h) Undertake or arrange investigations as appropriate (HCPC SoP 14.23) i) Analyse and critically evaluate the information collected (HCPC SoP 14.24) j) Investigate and monitor disease processes and normal states (HCPC SoP 14.25) k) Understand the principles of good laboratory practice (HCPC SoP 15.6)

Module 2: Health and Safety	1. Understand the need to establish and maintain a safe practice environment (HCPC SoP 15) 2. Understand the need to maintain the safety of both service users and those involved in their care (HCPC SoP 15.1) 3. Be aware of applicable health and safety legislation, and any relevant safety policies and procedures in force at the workplace, such as incident reporting (HCPC SoP 15.2) 4. Understand the biological hazard groups and associated containment levels (HCPC SoP 13.11)	a) Act in accordance with applicable health and safety legislation, and any relevant safety policies and procedures in force at the workplace, such as incident reporting (HCPC SoP 15.2) b) Work safely, including being able to select appropriate hazard control and risk management, reduction or elimination techniques in a safe manner and in accordance with health and safety legislation (HCPC SoP 15.3) c) Select appropriate protective equipment and use it correctly (HCPC SoP 15.4) d) Establish safe environments for practice, which minimise risks to service users, those treating them and others, including the use of hazard control and particularly infection control (HCPC SoP 15.5)
Module 3: Quality	1. Recognise the value of case conferences and other methods of review (HCPC SoP 11.2) 2. Be aware of the role of audit and review in quality management, including quality control, quality assurance and the use of outcome measures (HCPC SoP 12.3) 3. Be aware of quality assurance	a) Assure the quality of their practice (HCPC SoP 12) b) Engage in evidence-based practice, evaluate practice systematically and participate in audit procedures (HCPC SoP 12.1)

	programmes, where appropriate (HCPC SoP 12.5) 4. Recognise the need to monitor and evaluate the quality of practice and the value of contributing to the generation of data for quality assurance and improvement programmes (HCPC SoP 12.7) 5. Understand the implications of non-analytical errors (HCPC SoP 14.15) 6. Know the extent of the role and responsibility of the laboratory with respect to the quality management of hospital, primary care and community based laboratory services for near-patient testing and non-invasive techniques (HCPC SoP 14.16)	c) Maintain an effective audit trail and work towards continual improvement (HCPC SoP 12.4) d) Participate in quality assurance programmes, where appropriate (HCPC SoP 12.5) e) Evaluate intervention plans using recognised outcome measures and revise the plans as necessary in conjunction with the service user (HCPC SoP 12.6) f) Select and apply quality and process control measures (HCPC SoP 12.8) g) Identify and respond appropriately to abnormal outcomes from quality indicators (HCPC SoP 12.9)
Module 4: Performing Standard Investigations	1. Understand the techniques and associated instrumentation used in the practice of biomedical science (HCPC SoP 13.10) 2. Be aware of the need to assess and evaluate new procedures prior to routine use (HCPC SoP 14.22)	a) Evaluate analyses using qualitative and quantitative methods to aid the diagnosis, screening and monitoring of health and disorders (HCPC SoP 13.9) b) Conduct appropriate diagnostic or monitoring procedures, treatment, therapy or other actions safely and effectively (HCPC SoP 14.2)

		c) Perform and supervise procedures in clinical laboratory investigations to reproducible standards (HCPC SoP 14.3) d) Operate and utilize specialist equipment according to their discipline (HCPC SoP 14.4) e) Validate scientific and technical data and observations according to pre-determined quality standards (HCPC SoP 14.5) f) Demonstrate proficiency in liquid handling methodologies, including preparation of standard solutions and buffers (HCPC SoP 14.6) g) Demonstrate proficiency in practical skills in cellular science, blood science, infection science, molecular and genetic science and reproductive science, where appropriate to the discipline (HCPC SoP 14.7) h) Demonstrate practical skills in the processing and analysis of specimens including specimen identification, the effect of storage on specimens and the safe retrieval of specimens (HCPC SoP 14.8) i) Demonstrate practical

		skills in the investigation of disease processes (HCPC SoP 14.9) j) Work in conformance with standard operating procedures and conditions (HCPC SoP 14.10) k) Work with accuracy and precision (HCPC SoP 14.11) l) Prepare reagents accurately and consistently (HCPC SoP 14.12) m) Perform calibration and quality control checks (HCPC SoP 14.13) n) Use standard operating procedures for analyses including point of care in vitro diagnostic devices (HCPC SoP 14.26)
Module 5: Research and Development.	1. Recognise the value of research to the critical evaluation of practice (HCPC SoP 14.30) 2. Be aware of a range of research technologies (HCPC SoP 14.31)	a) Use statistical packages and present data in an appropriate format (HCPC SoP 14.27) b) Demonstrate a logical and systematic approach to problem solving (HCPC SoP 14.28) c) Use research, reasoning and problem solving skills to determine appropriate actions (HCPC SoP 14.29) d) Evaluate research and other evidence to

		inform their own practice (HCPC SoP 14.32) e) Experiments, report, interpret and present data using scientific convention, including application of SI units and other units used in biomedical science (HCPC SoP 14.33)

3.7 Profession Specific Academic Subjects

This is specifically applicable to the new HCPC standards of proficiency (SoP) 13.1 – 13.10 and 15.2 15.6 (formerly SoP 3a.1) in the IBMS Registration Equivalence Portfolio Module 1: Application of Professional Knowledge. The Learning outcome components are defined in the QAA subject benchmark statement for biomedical science against which the curriculum is mapped for the IBMS accreditation of undergraduate degree programmes.

Applicants will be expected to demonstrate they have achieved the outcomes specified in Table 3 against the curriculum subjects.

Table 3 Biomedical Science Profession Specific Subjects and Outcomes

Profession Specific Subjects	**Outcomes**
Human anatomy and Physiology refers to the structure, function and control of the human body, its component parts and major systems.	• Demonstrate a sufficient knowledge of the structure and function of the cardiovascular, endocrine, gastrointestinal, nervous, renal, reproduction, neurological, respiratory and skeletal systems of the human body. • Describe clearly the control of the functioning of the component parts of the above systems. • Have knowledge of basic human anatomy and physiology sufficient to underpin studies in the clinical laboratory specialities.
Cell biology is the study of the structure and function of cells (and the organelles they contain) and includes their life cycle, division, self-replication and eventual death.	• Have a knowledge and understanding of prokaryote and eukaryote cell structure and function (including organelles) and how cells respond to stress and injury. • Have some knowledge and understanding

Profession Specific Subjects	Outcomes
	of cell structure and function at the molecular level, and have some appreciation of the interplay of complex molecular events that help to maintain cell homeostasis.
Biochemistry is the study of chemical processes that support life. It requires knowledge of key chemical principles which are relevant to biological systems and includes the structure and function of biological molecules and cellular metabolism and its control.	• Relate the structure and function of carbohydrates, lipids, nucleic acids and proteins to the chemical properties of their building materials. • Describe metabolic pathways as interconnected sequences of coupled enzyme-catalysed reactions and interrelate catabolism and anabolism. • Explain the synthesis of storage forms of fuel molecules and their degradation to provide usable energy through metabolic processes. Describe intracellular and extracellular strategies to regulate cellular metabolism.
Genetics is the study of the structure and function of genes (including their role in human disease) and inheritance.	• Understand the main principles of gene expression.
Molecular Biology is the branch of biology that deals with the manipulation of nucleic acids (deoxyribonucleic acid (DNA) and ribonucleic acid (RNA)) so that genes can be isolated, sequenced or mutated. It covers methods that allow the insertion of new genes into the genome or the deletion of genes from the genome of an organism. It allows the effects of genes and genetic factors to be investigated in health and disease.	• Understand how the principles of genetics underlie modern molecular biology.
Immunology is the study of components of the immune system, their structure, function and mechanisms of action. It includes innate and acquired immunity.	• Have knowledge and understanding of innate and acquired immunity.
Microbiology is the study of the structure, physiology, biochemistry, classification and control of micro-organisms, including the role of normal flora.	• Have knowledge of important morphological features of the major classes of microorganisms and be able to handle culture and observe microorganisms in a safe and aseptic manner.
Cellular Pathology is the microscopic	• Describe the microscopic appearance of

Profession Specific Subjects	Outcomes
examination of normal and abnormal cells (cytopathology), and tissues (histopathology) for indicators of disease. It requires knowledge of: • the preparation of cells and tissues for microscopic examination; • microscopy and its applications; • the gross structure and ultrastructure of normal cells and tissues and the structural changes which may occur during disease; • the principles and applications of visualisation and imaging techniques.	normal and abnormal cells and tissues. • Describe the changes cells and tissues undergo when removed from the body, the principles of fixation, methods for the preparation of cells and tissues (including cytological and frozen material), decalcification and embedding techniques. • Describe the principles and practice of microtomy, and of section mounting. • Describe the principles of simple routine staining procedures and demonstrate practical ability in their application. • Describe the principles and practice of light, fluorescent and electron microscopy and understand their role in the diagnosis of disease.
Clinical Biochemistry is the evaluation of analytes to aid the screening, diagnosis and monitoring of disease. It requires knowledge of: • principles and applications of routine methods used in clinical biochemistry; • the investigation of the function and dysfunction of organs and systems and of the biochemical changes in disease; • the principles of the biochemical investigations used in the diagnosis, treatment and monitoring of disease; • therapeutic drug monitoring and investigation of substance abuse.	• Have a knowledge and understanding of the biochemical responses that may occur in a range diseases states. • Have an appreciation of how biochemical changes associated with disease are assessed in the clinical laboratory and how information about such changes is applied to the diagnosis and monitoring of disease.
Clinical Immunology is the study of immunopathological conditions and abnormal immune function. It requires 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.	• Have a knowledge and understanding of the causes and consequences of diseases associated with abnormal immune function, neoplastic diseases of the immune system and transplantation reactions. • Have an appreciation of how diseases associated with abnormal immune function, neoplastic diseases of the immune system and transplantation reactions are diagnosed, treated, and maintained.

Haematology is the study and investigation of the different elements that constitute blood in normal and diseased states. It requires knowledge of: • the structure, function and production of blood cells; • the regulation of normal haemostasis • the nature and diagnosis of anaemias; haemoglobinopathies and thalassaemias; haematological malignancy; and thrombotic diseases.	• Have a knowledge and understanding of diseases of haematopoiesis and haemostasis, and of the anaemias and leukaemias. • Explain the biochemical basis of the human ABO blood group system.
Transfusion science is the identification of blood group antigens and antibodies, which ensures a safe supply of blood and blood components. It requires knowledge of: • the genetics, inheritance, structure and role of red cell antigens; • the preparation, storage and use of blood components; • the selection of appropriate blood components for transfusion and possible adverse effects; • immune mediated destruction of blood cells.	• Appreciate the selection, preparation, storage and safe provision of appropriate blood components. • Be aware of the possible adverse effects associated with the use of blood and blood products. • Have knowledge of the role of histocompatibility antigens in transplantation. • Demonstrate knowledge of some diagnostic options where genetic disease is suspected.
Clinical Genetics is the identification of genetic mutations and polymorphisms and their influence on disease processes. It requires knowledge of: the principles of the methods used to study human chromosomes and DNA • Epigenetics; • the identification of genes for Mendelian diseases; • testing and screening for genetic susceptibility.	• Understand the rationale behind the human genome project. • Explain how mutations in DNA can give rise to the pathological changes seen in some diseases and how these mutations may be inherited.

Medical Microbiology is the study and investigation of pathogenic microorganisms. It requires knowledge of: • the pathogenic mechanisms of a range of microorganisms; • the laboratory investigation and the epidemiology of infectious diseases; • food, water and environmental microbiology; • anti-microbial and anti-viral therapy (including drug resistance); • infection control.	• Understand and carry out quantitative and qualitative methods to enumerate, identify and determine antibiotic sensitivity of microorganisms of medical importance. • Describe selected serological and molecular methods used in the diagnosis of infectious diseases.
Programmes should contain a reflective, integrated component (pathobiology) in which these clinical laboratory specialities are represented in a system-led approach to the study of disease and its treatment.	• Have an understanding of the explanation of biomedical concepts at all levels of biological organisation ranging from molecules to intact organisms.

4. Equivalence Assessment Process

4.1 The equivalence assessment process is based on individual applicants presenting evidence of their academic qualifications, professional experience and training for detailed assessment by Institute trained assessors.

4.2 Applicants will be required to go through a multi-stage application process made up of the following stages:

- Initial application and applicant screening for admittance to the programme
- Applicants compile evidence for the IBMS Registration Equivalence Portfolio
- Assessment of evidence and interview (*viva voce*)
- Statement of outcomes

4.3 The following documents will be required for **initial application** for admittance to the programme:

- Completed application form
- Assessment fee (£310). Please note, unsuccessful applications will incur a £50 administration fee, and the remainder of the fee will be refunded
- Proof of ID (Copy of passport or government issued photo ID e.g. driving licence)
- Photocopy of your qualification certificate(s)
- Photocopy of change of name (if relevant)
- Valid Disclosure and Barring Services (DBS) check

(Please note: if you have any criminal convictions outside of the UK you are not covered by this and you should declare them)

- Evidence of English language (IELTS level 7), if your English not first language
- Photocopy of UK NARIC comparability for your non-UK qualification(s)
- Completed laboratory training self-assessment form
- Personal statement
- Portfolio development plan

4.4 Following assessment by IBMS education staff, a visit to the applicant's laboratory may be required to confirm arrangements for completing the IBMS Registration Equivalence Portfolio. Applicants will be issued with the IBMS Registration Equivalence Portfolio and given 12 months to submit a portfolio of evidence mapped to Registration Equivalence Portfolio to demonstrate how they meet the HCPC standards of proficiency for biomedical scientists. The portfolio of evidence must include:

- Evidence of academic qualifications content where relevant to the standards of proficiency
- Evidence of experiential learning through laboratory training, current practice, CPD
- Evidence of professional competence (witness testimonies, case studies, presentations for example)

- Evidence of structured training and competence to the threshold level required for HCPC registration (to note: assessment of this will be based on IBMS standards for other approved routes to registration)

4.5 Assessment of the evidence provided for the IBMS Registration Equivalence Portfolio will be carried out by peer review (an assessment panel of two IBMS members registered with the HCPC, together with a lay representative). The assessment panel will determine, on a case by case basis, whether the evidence provided in the IBMS Registration Equivalence Portfolio is equivalent to the standard required for those competing one of the three established HCPC approved routes previously mentioned. A report of the assessment outcomes will be submitted to the IBMS Education Department.

4.6 The applicant will be asked to attend a *viva voce* with the assessment panel to clarify any queries, explore aspects of their education and training, and understanding of the standards of proficiency, thereby confirming their suitability for the award. Each assessment will normally last between 30 and 60 minutes.

4.7 The Assessment Panel will produce a final report for submission to the IBMS Education and Professional Standards Committee, identifying whether or not additional evidence is required in relation to areas of the Registration Equivalence Portfolio that need to be completed.

4.8 Assessors will be able to make the following summary recommendations:

- Outcome 1: Applicant has met all of the requirements of the Registration Equivalence Portfolio and should be awarded the Certificate of Competence by Equivalence (Biomedical Scientist).
- Outcome 2: Applicant has partially met the requirements of the Registration Equivalence Portfolio and is required to submit further evidence to address specific standards of proficiency.
- Outcome 3: Applicant has failed to meet the requirements of the Registration Equivalence Portfolio and will need to resubmit for full assessment following further training and/or compilation of additional evidence.

4.9 Where additional evidence is required, recommendations will be made as to how this can be achieved (additional training in their own laboratory or an IBMS approved laboratory, taught courses, CDP etc). A maximum time frame for resubmission will be set, dependant on the nature of the further evidence that is required.

4.10 Assessor recommendations will be ratified by the IBMS Education and Professional Standards Committee.

4.11 Applicants will be notified of the outcome of their assessment and invited to complete a feedback form.

4.12 Applicants will have the opportunity to appeal on procedural matters related to the assessment process. Appeals against the judgement of the assessors or the Education and Professional Standards Committee will not be accepted.

5. Quality Assurance Methods for Evaluating and Improving the Quality of Learning

5.1 Overview

Responsibility for the quality of programmes provided by the IBMS ultimately lies with the Executive Head of Education and education executive team but careful monitoring of this takes place at several other points:

- Executive Head of Education and education team undertake the day-to-day responsibility for programme provision
- Education and Professional Standards Committee considers assessment panel reports (individual and Final Stage One report, Stage Two report and recommendations, quarterly reports on delivery, progression, achievement, candidate/mentor feedback, etc
- Executive Head of Education in conjunction with Education and Professional Standards Committee, considers overall issues affecting the quality of the programme
- External Examiners' Reports – an important external measure of the quality of programme provision
- Annual Programme Report – monitors overall programme performance in each academic session and produces action plans to address any major issues

5.2 Mechanisms for review and evaluation of learning, teaching, assessment and curriculum design.

These are primarily related to the IBMS degree accreditation processes and periodic review of its qualifications whereby currency and appropriateness to professional practice is maintained. The review of laboratory approval processes for other HCPC approved programmes offered by the IBMS will also inform the basis for the judgement of background training for equivalence assessment. Advisory panel members provide expertise for the individual disciplines and a majority of whom work directly with service users and carers, so their experiences are used to inform professional standards and developments. Advisory panels and the Education and Professional Standards Committee have "Service users and carers" as a standing agenda item for meetings.

Specific processes related to this programme are:

- Applicants are required to produce specified evidence for the Registration Equivalence Portfolio (Biomedical Scientist) SoP 9.1 (Module 5 Professional Relationships) that requires them to reflect on the contribution of service users to their development
- The applicant assessment process involves a lay representative in the assessment panel
- Quarterly and annual monitoring reports produced by the Education Department for the Education and Professional Standards Committee

- Assessment Panel reports from Part One and Part Two of the assessment process
- Student and mentor feedback reports
- Registration Equivalence Portfolio review
- An External Examiner who is HCPC registered as a Biomedical Scientist will be appointed to produce an annual report taking into account the above reports and monitoring processes

5.3 Committees with responsibility for monitoring and evaluating quality and standards:

- Education and Professional Standards Committee

5.4 Processes for gaining student feedback on the quality of the teaching and their learning experience:

- Assessment Panel report
- Candidate feedback report

5.5 Professional development opportunities for those involved in various aspects of the programme include:

- Council and Advisory Panel meetings
- University/employer Training the Trainers (with input from IBMS executive staff)
- IBMS training conferences and the biennial Congress
- CPD officer days
- Local presentations
- Registration Equivalence Portfolio assessor training days

6. Support for Students and Key Sources of Information

The IBMS is committed to supporting the welfare and wellbeing of candidates (and service users) once they have been admitted to the programme and to ensuring candidates are supported to enable them to raise concerns about themselves, or the safety and wellbeing of service users. This includes support to recognise where there may be risk and ensuring action is taken in response to concerns that have been raised. The following resources are available from the IBMS and may be used in addition to the usual employment policies.

6.1 Provided directly by the IBMS personnel:

- IBMS education executive team (including via designated email address: equivalence@ibms.org)
- IBMS education administrative staff
- IBMS Council (some of whom are members of the Education and Professional Standards Committee)

6.2 Provided by other IBMS resources:

- IBMS CPD scheme (IBMS members only)

- Open access to the IBMS website www.ibms.org which includes the following specific programme information as **key sources of information**:

  - Certificate of Competence by Equivalence (Biomedical Scientist) Programme Handbook
  - Certificate of Competence by Equivalence (Biomedical Scientist) Guidance for Candidates
  - Curriculum Handbook for IBMS Certificate of Competence by Equivalence (Biomedical Scientist)
  - Role of the Mentor: Guidance for Candidates and Mentors

- A designated forum on the IBMS website for applicants and mentors to exchange ideas and experiences

6.3 Provided by external resources:

- Workplace trainers
- Applicant's mentor

7. Equality and Diversity

The IBMS operates an equality and diversity policy using the *Equality and Diversity Monitoring Form Procedure IBMS QM801 01* and *Equality and Diversity Policy Form IBMS QM801 02.* Forms are available at https://www.ibms.org/resources/documents/ibms-equality-and-diversity-monitoring-form/

In relation to this programme, the purpose of the policy is to provide equality and fairness for all in our dealings with applicants seeking assessment of their experiential learning. All applicants for the IBMS Certificate of Competence by Equivalence (Biomedical Scientist) will be treated fairly and with respect. All applicants will be assessed against the evidence provided to show that they meet the HCPC standards of proficiency for biomedical scientists.

This assessment will be based on a published curriculum. Applicants will be asked to complete an optional equality and diversity monitoring form which will be separated from the other application documents prior to assessment and review, and will be considered as part of the IBMS Equality and Diversity Policy.

8. Complaints Handling System

The Institute operates a complaints handling procedure which can be found at the following link https://www.ibms.org/go/contact-find-us

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