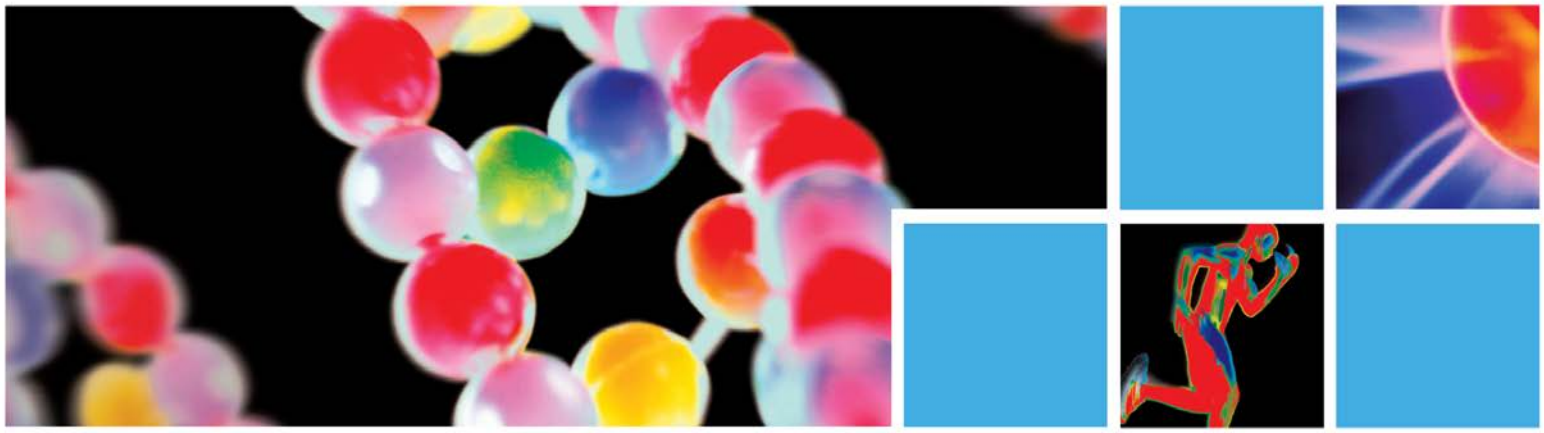

MSc Biomedical Science by Flexible Learning

Core Modules

Research Methods and IT (15 CP)
In this module you will learn about the methods available to carry out and report on your postgraduate research. You will gain skills and knowledge in key areas of research methods and information technology, and explore topics, activities and discussions relating to essential research skills such as experimental design, research planning, data analysis and report writing. We will also be discussing important issues, including data protection, filing patents and the peer review process in scientific publication. You will have the opportunity to read and critically analyse scientific publications and present findings in a variety of formats.

The module will enhance your ability to evaluate scientific research and interpret research findings in a professional manner and will prepare you to conduct scientific research in a professional context.

Research Project (60 CP)
You will undertake a laboratory-based scientific investigation of a topic of your choice, subject to approval by the university. Project work is assessed as a piece of scientific research and requires an extensive literature survey and synthesis, appropriate experimental work and an in-depth analysis and discussion of the findings.

Working individually with the guidance of your supervisors, you will design your own experimental approaches to address the research question(s). You will then communicate your findings via a written thesis and a poster presentation.

Scientific Analysis, Review and Presentation (30 CP)
This module enables you to gain the relevant skills required of high quality academic reporting of scientific research. It is available as an alternative for those students who do not have the facilities to carry out the research project.

Through a series of online tutorial sessions, you will learn from staff peer discussions how to research, analyse and report on scientific findings related to your degree. The module assesses the review and critical analysis of scientific papers and culminates in the submission of a dissertation.

Specialist Subject Modules

Cancer and Heart Disease (30 CP)
Carry out an in-depth analysis of cancer and cardiovascular disease, which are the two major causes of premature death in the UK. These diseases are examined at the physiological, biochemical and molecular levels, and are used to illustrate the techniques available for the analysis, diagnosis and treatment of these conditions, many of which are applicable to other disease states, for example gene therapy.

Cell Culture and Antibody Technology (15 CP)
Acquire knowledge and understanding of the major research disciplines and applications of cell culture and antibody technology, including advanced knowledge of animal cell culture and antibody technology with reference to recent technologies and advances within the field of antibody engineering.

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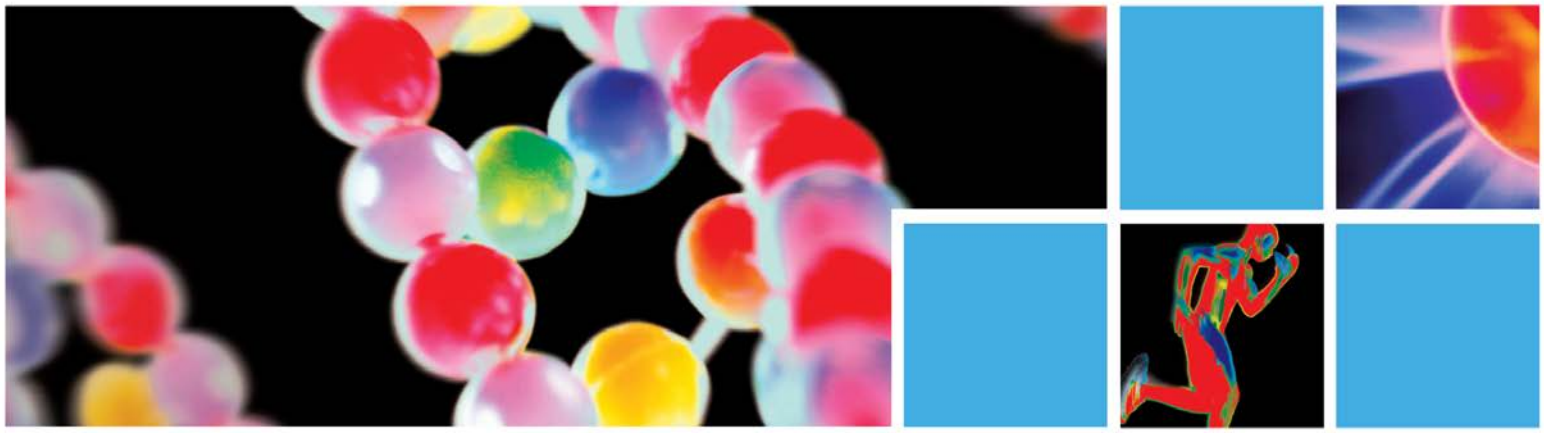


You'll be able to demonstrate the relationships between cell culture technology, antibody technology and other areas of Biomedical Science, cancer biology, molecular biosciences and Biotechnology. Using this knowledge you will be able to investigate current trends and examine the commercial and social impact of these technologies.

Cellular Pathology (30 CP)
You will study the branch of pathology dealing with tissue diagnosis and study of disease. It involves the study of the microanatomy of tissues and organs by interpretation of thin sections of these specimens and microscopic examination. You will study topics such as cancer diagnosis and the histopathology of various organs and tissues, including breast, skin, bone, renal and liver pathology. You will also investigate current laboratory practices such as sample receipt and processing; tissue preparation techniques, immunocytochemistry techniques and molecular diagnostics.

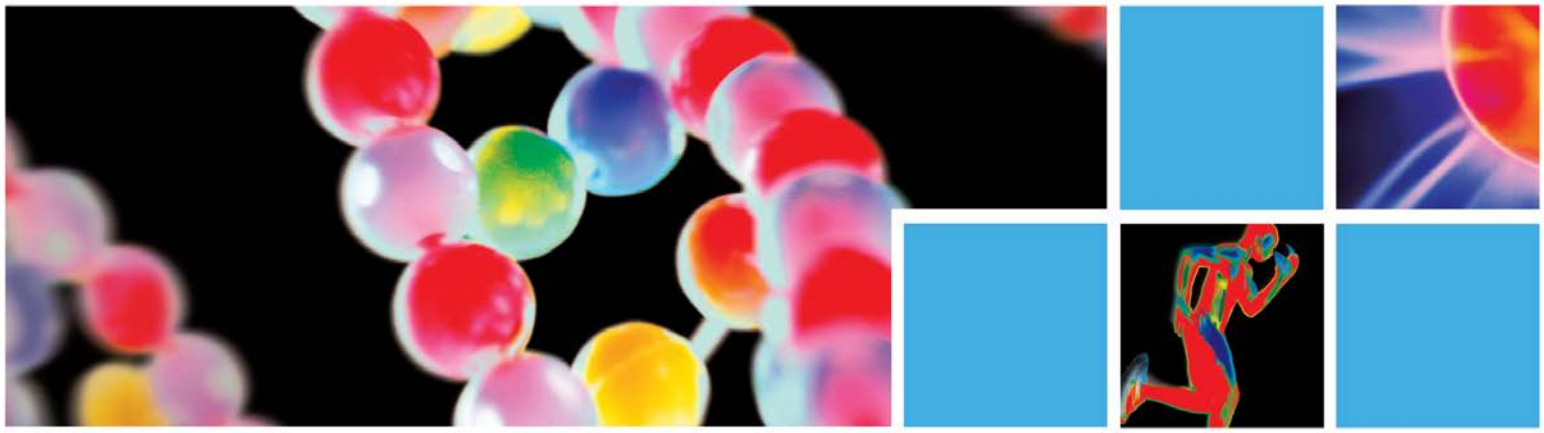
Clinical Chemistry (30 CP)
In this module, learning centres around key topics in clinical chemistry, with a particular focus on current medical and diagnostic practice. Specific areas include how the clinical biochemistry laboratory is involved in providing results which are important in the management of conception and pregnancy, and includes pre-conception assessments, foetal screening tests and tests for maternal wellbeing in later pregnancy.

Cytology (30 CP)
Explore key topics in Cytology with particular relevance to current medical and diagnostic practice. This will include an appreciation of the laboratory role in the diagnosis and treatment of illness alongside fundamental issues associated with the modern laboratory. The two main areas of cytology will be covered: cervical cytopathology and non-cervical cytopathology. Examples of topics include sample receipt and processing, the aetiology and epidemiology of cervical cancer and current techniques used in screening and diagnosis.

Haematology and Transfusion (30 CP)
You will be introduced to current topics of interest in the field of haematology and blood transfusion science, with particular relevance to current medical and diagnostic practice. You will study topics such as primary investigations of blood and blood components, causes and pathogenesis of anaemia, haematological malignancies, disorders of blood coagulation and hospital transfusion practice.

Medical Microbiology (30 CP)
Develop an appreciation of the importance of medical microbiology in the diagnosis, prevention and treatment of disease. This will include an appreciation of the laboratory role in the diagnosis and treatment of illness, for example sample receipt, and processing and laboratory investigation of conditions caused by bacteria, fungi and parasites.

Molecular Biology and DNA Technology (15 CP)
This module provides valuable information for those who have not previously studied molecular biology, by providing knowledge and understanding of one of the fundamental disciplines of modern theoretical and experimental biology. The aim of this module is to consolidate knowledge of the molecular biology of prokaryotes and eukaryotes, and illustrate how genomes are mutated, analysed and manipulated in the detection, study and therapy of disease. You will study the control of gene expression in prokaryotes and eukaryotes and the control at transcriptional, post-transcriptional (RNAi, microRNA) and translational levels.



Pharmacology (30 CP)
Develop an understanding of the interactions of drugs with macromolecules (receptors and ion channels), and modern molecular techniques used in pharmacology and drug discovery / development. The aim throughout will be to integrate data from classical pharmacology and molecular pharmacology approaches.

Special Topics in Molecular Biology (15 CP)
You will be introduced to the ways in which yeast and plant vectors are used and engineered for a variety of purposes, encompassing recombinant protein and metabolite production, research and crop improvement. We will provide an overview of and links to details of currently used molecular biological experimental techniques.

Specialist Subject Modules with the addition of the IBMS Specialist Diploma

Cellular Pathology with Professional Studies (45 CP)
You will study the branch of pathology dealing with tissue diagnosis and study of disease. It involves the study of the microanatomy of tissues and organs by interpretation of thin sections of these specimens and microscopic examination. You will study topics such as cancer diagnosis and the histopathology of various organs and tissues, including breast, skin, bone, renal and liver pathology. You will also investigate current laboratory practices such as sample receipt and processing; tissue preparation techniques, immunocytochemistry techniques and molecular diagnostics.

Online material is provided to assist you in the collection of evidence and completion of portfolio requirements for the IBMS Specialist Diploma. You will need to inform the Course Leader when you plan to submit the specialist portfolio for assessment by the IBMS, which is required for the award of Institute of Biomedical Science Specialist Diploma.

Clinical Chemistry with Professional Studies (45 CP)
In this module, learning centres around key topics in clinical chemistry, with a particular focus on current medical and diagnostic practice. Specific areas include how the clinical biochemistry laboratory is involved in providing results which are important in the management of conception and pregnancy, and includes pre-conception assessments, foetal screening tests and tests for maternal wellbeing in later pregnancy.

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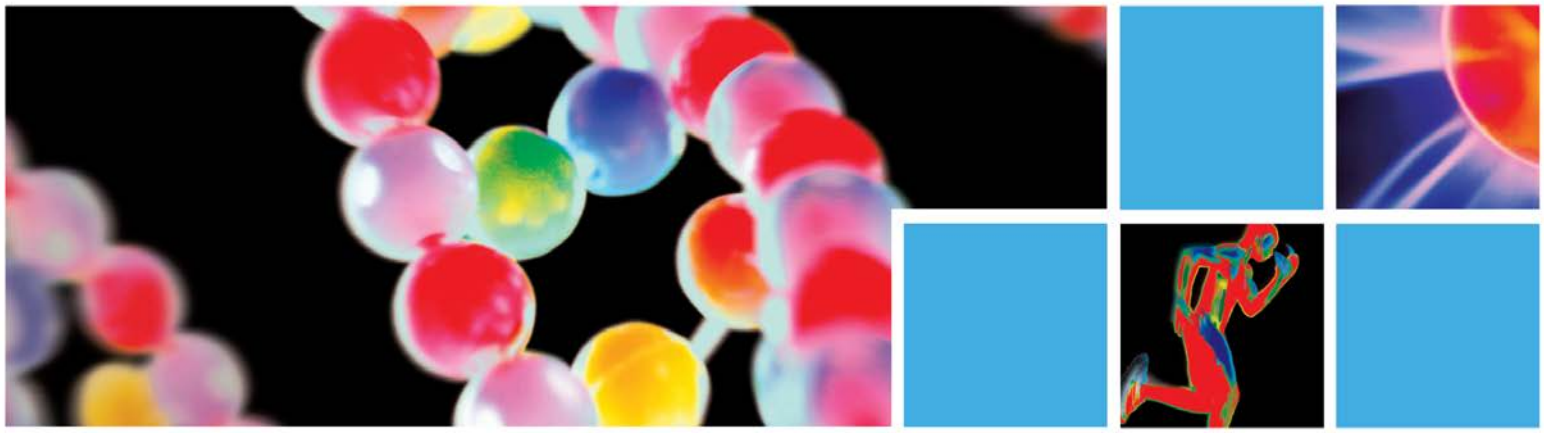
Haematology and Transfusion with Professional Studies (45 CP)
You will be introduced to current topics of interest in the field of haematology and blood transfusion science, with particular relevance to current medical and diagnostic practice. You will study topics such as primary investigations of blood and blood components, causes and pathogenesis of anaemia, haematological malignancies, disorders of blood coagulation and hospital transfusion practice.



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