## Module Catalogue Life Sciences Undergraduate Exchange 2024/5 Semester 1

| **Module Code** | **Module Name** | **Level** | **Semester** | **UK Credit Value** | **Credit Equivalency** |
| --- | --- | --- | --- | --- | --- |
| **Biological Sciences and Biochemistry** | | | | | |
| 4BICH001W | [Biochemistry](#4BICH001W) | 4 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 4BIOL001W | [Applications of Biological Sciences](#4BIOL001W) | 4 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 5BICH001W | [Metabolic Biochemistry](#5BICH001W) | 5 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 5BICH003W | [Molecular Biology and Genetics](#5BICH003W) | 5 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 6BICH004W | [Gene Editing and Genomics](#6BICH004W) | 6 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 6BIOL001W | [Designing a Sustainable World](#6BIOL001W) | 6 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| **Biomedical Sciences** | | | | | |
| 4BIOM004W | [Functional Anatomy](#4BIOM004W) | 4 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 4BIOM006W | [Professional Development in Science (PRoDS)](#4BIOM006W) | 4 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 5BIOM003W | [Molecular and Cellular Therapeutics](#5BIOM003W) | 5 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 5BIOM009W | [Human Parasitology](#5BIOM009W) | 5 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 5BIOM010W | [Research Methods](#5BIOM010W) | 5 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 5PHYM001W | [Medical Physiology](#5PHYM001W) | 5 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 6BIOM004W | [Diagnostic Biochemistry and Haematology](#6BIOM004W) | 6 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 6BIOM005W | [Medical Microbiology in the Genomics Era](#6BIOM005W) | 6 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| **Nutrition, Pharmacology and Physiology** | | | | | |
| 4HMNT004W | [Psychology and Sociology of Health and Well-being](#4HMNT004W) | 4 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 4PHSC001W | [Introduction to Public Health](#4PHSC001W) | 4 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 5HMNT002W | [Applied Nutrition](#5HMNT002W) | 5 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 6HMNT005W | [Nutrition in Emergencies](#6HMNT005W) | 6 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 6PHYM001W | [Human Physiological Adaptations](#6PHYM001W) | 6 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 6PHYM004W | [Drug Discovery: Bench to Bedside](#6PHYM004W) | 6 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |

\* All transcripts are issued in UK credits. Please note the recommendation of a 4 US credit value equivalency is provided as guidance. Final credit values for all modules for US students are decided by your home institution and will be dependent on its credit transfer policies.

## Biological Sciences and Biochemistry

### Biochemistry

[**Module Code: 4BICH001W**](#4BICH001W_return)

**Level 4**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

Students of Life Sciences need to be comfortable with the chemistry and biochemistry of the molecules of life and the processes in which these molecules are vital components.This module will enable students to explore the diversity and function of a broad range of biological molecules, combining a range of learning and teaching methods (lectures, practicals and tutorials) to support the student through this challenging subject. It is essential that students be given the opportunity to develop laboratory skills, and as such the a number of formative practical exercises will be undertaken, in line with the theoretical content of the module. Students will be assessed both formatively and summatively, giving them the opportunity to improve on their skills and to prepare them for higher levels of study. Areas covered are: properties & reactions of biological molecules; biomolecular processes; energy for life’s processes and laboratory techniques for biochemistry and molecular biology.  
**Assessment:** Coursework (25%), Lab-Based Practical (25%), Multiple-Choice Question Test (50%), Coursework (25%), Lab-Based Practical (25%), Multiple-Choice Question Test (50%)  
\*All transcripts are issued in UK credits.

### Applications of Biological Sciences

[**Module Code: 4BIOL001W**](#4BIOL001W_return)

**Level 4**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

A study of how molecular bioscience can help solve biological problems encountered by human beings. The theme followed molecular bioscience will start with a consideration of how sequencing the human genome and bioinformatic analysis has led to the incarnation of personal medicine. It will consider how human diseases and conditions are being treated in the 21st Century: the development of new antibiotics the use of stem cell biology and the science of tissue regeneration. Specific studies will be made of cancer and neuro-degeneration to show how modern molecular biochemical and biophysical techniques are being used by Bioscientists to study these diseases. In addition the wider applications of molecular science in agriculture forensic science and biotechnology will be explored.  
**Assessment:** Coursework (40%), Coursework (60%)  
\*All transcripts are issued in UK credits.

### Metabolic Biochemistry

[**Module Code: 5BICH001W**](#5BICH001W_return)

**Level 5**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

***Pre-requisite: 4BICH001W Biochemistry or 4HMNT002W Metabolism of Nutrition and Exercise***  
This module provides a comprehensive overview of modern biochemistry. Topics include major pathways for the degradation and / or biosynthesis of carbohydrates, fatty acids & amino acids, respiration & oxidative phosphorylation, the role of enzymes in metabolic processes, all underpinned with a stress on underlying thermodynamic principles. The module will also provide a thorough overview of various strategies (e.g. enzyme regulation, cell signaling, etc.) employed by organisms to regulate their metabolism and maintain homeostasis. Finally, the module will also examine a number of important metabolic disorders and diseases in order to allow students to integrate and apply what they have learnt throughout the module.  
**Assessment:** Presentation - submissions only (40%), Multiple-Choice Question Test (60%)  
\*All transcripts are issued in UK credits.

### Molecular Biology and Genetics

[**Module Code: 5BICH003W**](#5BICH003W_return)

**Level 5**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

***Pre-requisites: Previous study in Biochemistry***  
This module will build on fundamental principles covered at level 4 about DNA and gene expression to introduce concepts about epigenetic and microRNA gene regulation. The module will discuss polymorphisms and their inheritance. A range of molecular techniques will be covered which include DNA isolation from a range of starting sources, amplification of specific regions of DNA, separation of DNA fragments, cloning, recombinant DNA expression and sequencing.  
**Assessment:** Multiple-Choice Question Test (20%), Presentation Group (40%), Coursework (40%)  
\*All transcripts are issued in UK credits.

### Gene Editing and Genomics

[**Module Code: 6BICH004W**](#6BICH004W_return)

**Level 6**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

The module features lectures on molecular origins and cellular basics of targeted eukaryotic cell engineering, a highly sought-after skill in life sciences landscape. Students will acquire hands-on training in design of an efficient gene editing workflow, including using computer algorithms. The module will also discuss the advances in gene editing including novel Cas variants, base and prime editing approaches and innovative delivery mechanisms for therapeutic interventions. Opportunities for students to apply and evaluate their learning extensively is perceived as the core of this module.  
**Assessment:** Project (50%), Coursework Group Practical (50%)  
\*All transcripts are issued in UK credits.

### Designing a Sustainable World

[**Module Code: 6BIOL001W**](#6BIOL001W_return)

**Level 6**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

This module will explore the environmental, social and economic foundationsof sustainability and the influence of policy, governance and design on them. You will identity innovative biological solutions that can be used to mitigate challenges to local, regional and global sustainable development and design your own solution to a named problem.  
**Assessment:** Coursework (60%), Presentation Group (40%)  
\*All transcripts are issued in UK credits.

## Biomedical Sciences

### Functional Anatomy

[**Module Code: 4BIOM004W**](#4BIOM004W_return)

**Level 4**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

The emphasis for this module is to develop an understanding of how the structural organisation of different cell types within a tissue/organ enable and support the tissue/organ’s normal function. For every tissue/organ studied, the functional role of that tissue/organ in the whole body, as covered in Human Physiology, will be studied. A significant component of the module will be evaluating the impact of pathological processes on whole body physiology and integrity.  
**Assessment:** Multiple-Choice Question Test (40%), Coursework (60%)  
\*All transcripts are issued in UK credits.

### Professional Development in Science (PRoDS)

[**Module Code: 4BIOM006W**](#4BIOM006W_return)

**Level 4**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

The module will introduce the concepts of employability and professionalism in the workplace with specific reference to the Bioscience/Life Science industry. Emphasis will be placed on learning to conduct one’s self as a credible scientist with ethical professional and honest manner with consideration for scientific advances and technological innovation. Students will be taught about scientific communities, learn to appreciate diversity and constructive discussions on scientific topics; evaluate scientific literature, importantly critically examining the credibility of sources of scientific claims. Students will document through a variety of assessments transferrable skills linked to career development pathway in a professional development portfolio. Emphasis will be made on the continuity of the portfolio throughout their time at Westminster and into the world of work. Through a blended learning approach and introduction to the Careers and Employability Service and Westminster Employability Award, the central ethos portrayed will be to develop a professional employability portfolio throughout the journey through higher education. Extracurricular activities will be encouraged, and students will learn of opportunities for non-mandatory, short term internship opportunities and short term placements through engage and Talent Hub.  
**Assessment:** Portfolio (50%), Coursework Group (40%), Coursework (10%)  
\*All transcripts are issued in UK credits.

### Molecular and Cellular Therapeutics

[**Module Code: 5BIOM003W**](#5BIOM003W_return)

**Level 5**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

This module comprises lectures and tutorials designed to give students an understanding of molecular and cellular therapeutic strategies available for the treatment of inherited and acquired diseases. As the field is progressing rapidly the contents are upgraded annually to introduce cutting edge current concepts and opinions. Modern molecular and gene therapies, immunotherapy,bacteriophage-based therapies, clinical trials and associated ethical issues are discussed.  
**Assessment:** Coursework (60%), Multiple-Choice Question Test (40%)  
\*All transcripts are issued in UK credits.

### Human Parasitology

[**Module Code: 5BIOM009W**](#5BIOM009W_return)

**Level 5**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

The pathogenesis of human parasitic diseases; case histories will be used to demonstrate the principles and practice of parasitology. Life cycles and control of insect, worm and protozoan parasites including malaria, schistosomiasis, trypanosomiasis and nematode infections. The failures and successes of control programmes will be reviewed. Other topics covered will be the impact of HIV/AIDS, the effect of parasitic infections on nutrition and the importance of insects as vectors of parasitic diseases.  
**Assessment:** In-Class Test/Assignment exam conditions (50%), Presentation Group- submissions only (50%)  
\*All transcripts are issued in UK credits.

### Research Methods

[**Module Code: 5BIOM010W**](#5BIOM010W_return)

**Level 5**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

The module covers essential elements of research methods, data analysis (as relevant to the Biosciences) and provides the students with key laboratory techniques. On completion of the module successful students will have developed the expertise to extract and interpret scientific information from peer-reviewed original sources, have used this information to produce a literature review of a specific area in the biosciences, prepared a design for their final year research project as well undertaken a skill-based evaluation of their competencies (PPP 5.3).  
**Assessment:** Coursework (50%), Portfolio (25%), Portfolio (25%), Coursework (50%), Portfolio (25%), Portfolio (25%)  
\*All transcripts are issued in UK credits.

### Medical Physiology

[**Module Code: 5PHYM001W**](#5PHYM001W_return)

**Level 5**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

***Pre-requisite: Previous study in Physiology or Biochemistry***  
Using student-centred enquiry based learning, which allows students to become co-creators of their own knowledge in a small group format, students will be required to integrate and synthesize material covered in this module with learning from both Physiological Biochemistry and Physiological Networks in order to further their understanding of how the different body systems are regulated and how one system influences another. Clinical disorders will be used to demonstrate the consequence(s) of disruption to normal function in one system on another system/other systems.  
**Assessment:** Portfolio (100%)  
\*All transcripts are issued in UK credits.

### Diagnostic Biochemistry and Haematology

[**Module Code: 6BIOM004W**](#6BIOM004W_return)

**Level 6**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

***Pre-requisite: 5BIOM007W Applied Pathobiology and 5BICH001W Metabolic Biochemistry or equivalent***  
Clinical and technical theory and practice underpinning the current biochemistry and haematology laboratory investigation of selected disorders. Including processes for method evaluation and the incorporation of quality assurance systems for decision making.  
**Assessment:** Portfolio (40%), Set exercises and test (not exam conditions) (60%), Portfolio (40%), Set exercises and test (not exam conditions) (60%)  
\*All transcripts are issued in UK credits.

### Medical Microbiology in the Genomics Era

[**Module Code: 6BIOM005W**](#6BIOM005W_return)

**Level 6**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

***Pre-requisite: 5BIOM008W Infection and Immunity or equivalent***  
Detection, identification and characterization of pathogenic microorganisms. Pathogenesis, transmission and epidemiology of infectious diseases; treatment and prevention of infectious with emphasis on diseases of current and emerging importance. Also covered are: laboratory automation, antibiotic resistance; microbial genomics and bioinformatics: public health measures used for disease control.  
**Assessment:** Coursework (50%), Coursework (50%), Coursework (50%), Coursework (50%)  
\*All transcripts are issued in UK credits.

## Nutrition, Pharmacology and Physiology

### Psychology and Sociology of Health and Well-being

[**Module Code: 4HMNT004W**](#4HMNT004W_return)

**Level 4**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

Modern health professionals require a broad, inclusive and diverse understanding of the factors that can influence health and wellbeing.  This module aims to help students explore both the psychological and sociological factors that can influence and impact health and wellbeing.  Contemporary, current and relevant issues related to health will be examined at individual, community and population levels.  Learners will explore the topic from a variety of positions and frameworks. The module will encourage students to examine and academically interrogate the complexity of health and wellbeing.  They will also gain an understanding of how policies, practices and behaviours impact health and disease in real-world scenarios.  Students will have the opportunity to gain an understanding of the impact interventions have on societies health, well-being and the economy. They will gain study the nature of volitional behaviour and explore the role and responsibility that governance and leadership have in promoting sustainable community, societal and global health outcomes.  Learners will also consider the possibilities of intervention strategies to improve behaviour-related health at a variety of life stages.   
**Assessment:** Coursework (50%), Coursework (50%), Coursework (50%), Coursework (50%)  
\*All transcripts are issued in UK credits.

### Introduction to Public Health

[**Module Code: 4PHSC001W**](#4PHSC001W_return)

**Level 4**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

In this module, the student will be introduced to public health. The students will learn what working in public health involves the basic terms of public health and the determinants of public health. The influence of historical events and geographic changes on public health will be discussed including pandemics. This will allow the students to understand how public health priorities are set and how they can change. Current public health problems, social determinants, health and social inequalities, cultural differences, environmental changes and healthcare systems will all be discussed in relation to public health. The students will be asked to reflect on their skills and role as future public health representatives.  
**Assessment:** Presentation Group- submissions only (50%), Essay (50%)  
\*All transcripts are issued in UK credits.

### Applied Nutrition

[**Module Code: 5HMNT002W**](#5HMNT002W_return)

**Level 5**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

***5HMNT002W: Principles of Human Nutrition***  
Applied Nutrition introduces students to the inter-disciplinary applications of human nutrition. The module will use fundamental concepts of dietary assessment and nutritional intake estimation to introduce students to the interplay of related scientific disciplines, through an appraisal of their interactions within food systems. A life-course approach is used as a framework in the module, with reading sessions designed to encourage students to reflect on the utility (or not) of methods described within the context of differing socio-demographic, cultural and lifestyle-based factors.  
**Assessment:** Coursework Practical (50%), Coursework (50%), Coursework Practical (50%), Coursework (50%)  
\*All transcripts are issued in UK credits.

### Nutrition in Emergencies

[**Module Code: 6HMNT005W**](#6HMNT005W_return)

**Level 6**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

This module is designed to provide an overview of nutrition in humanitarian emergencies. The issues covered will include an introduction to the humanitarian charter and global standards for coordination and accountability. It will introduce tools for identifying and addressing context-specific challenges, for improving nutrition outcomes, in a variety of emergency contexts. The training in is line with the Harmonised Training Package developed with the Global Nutrition Cluster. It will include sessions on emergency trends, lessons learned from recent emergencies, early warning systems and disaster risk reduction plans.  It will also build transferable skills for preparing and presenting complex information in a simple format to different population groups.   
**Assessment:** Presentation (40%), Essay (60%)  
\*All transcripts are issued in UK credits.

### Human Physiological Adaptations

[**Module Code: 6PHYM001W**](#6PHYM001W_return)

**Level 6**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

***5PHYM001W Medical Physiology (or equivalent)***  
This module will explore human physiological adaptations which occur in response to a range of common pathological, pharmacological, physiological and environmental triggers or events. The module will focus on the physiological adaptations which occur to the human body as a result of these events using a student-centred enquiry based learning approach, which allows students to become co-creators of their own knowledge in a small group format. By discussing adaptations to normal human physiological systems it will be necessary for students to explore the normal physiological mechanisms which occur in healthy humans in detail. This module will continue to build on taught physiology modules at Levels 4 & 5.  
**Assessment:** Portfolio (70%), Coursework (30%)  
\*All transcripts are issued in UK credits.

### Drug Discovery: Bench to Bedside

[**Module Code: 6PHYM004W**](#6PHYM004W_return)

**Level 6**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

**Equivalent Credit Value: US Credits 4 / ECTS credits 10\***

***Pre-requisite: 5PHYM003W Experimental and Therapeutic Pharmacology***  
The module offers a comprehensive overview of the different phases of the drug discovery and development process, from initial concepts through to pre-clinical stages and clinical trials. Existing and novel 'pipeline' drugs, acting on the immune system will act as exemplars, given the recent growth of this increasingly important area. Usage of these drugs in the treatment of inflammatory disease states, and identification of novel therapeutic targets for their treatments, will be covered.  
**Assessment:** Coursework (40%), Coursework (60%)  
\*All transcripts are issued in UK credits.